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Declaration of Originality

I, Brian Stratton Tritton, declare that the Masters by Research thesis entitled 'Competency-based Learning in Higher Education' is no more than 60,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature: Date:

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Abstract

In 2004 the Victorian Office of Higher Education accredited a four-year undergraduate degree: Bachelor of Health Science (Myotherapy). This degree had stemmed from a three-year competency-based, Advanced Diploma of Myotherapy which is no longer accredited in the Vocational Education and Training (VET) sector. Myotherapy can be defined as the treatment and management of musculoskeletal pain. The Myotherapy degree program was developed as a content-based curriculum without a formal competency-based component. As with many vocational programs in the Higher Education (HE) sector, Myotherapy requires the development of both underpinning and acquired knowledge to carry out a number of procedural tasks. Consequently, this study intended to ascertain if there is a place for the formalisation of *Competency-based Learning in Higher Education.*

A qualitative methodology using principles of grounded theory was used for the study. The data examined comprised documentation pertaining to competency-based programs combined with information from descriptive surveys and semi-structured interviews conducted with a cohort of participants experienced in teaching, lecturing and/or designing curriculum for competency-based programs in the VET and HE sectors. Data collected was coded throughout the collection process and analysed for identification of themes and interpretation.

Results of the study suggest that competency-based learning has a place in the higher education sector and can be effective in those elements of a course which place an emphasis on procedural tasks. Its suitability was acknowledged as a component part of an integrated curriculum rather than the complete program.

Results also suggest that the nature of competency-based programs in the VET sector tends to produce a rigidity of thinking which can be described as 'protocolic' and based on the ability to following specific procedures, whereas the aims of the HE sector require graduates to acquire functional knowledge based on analytic inquiry. This implies that the HE sector needs to look 'beyond competency' to an approach such as 'capability' to produce graduates with the required generic skills and graduate attributes considered to be both employable and possessing acceptable qualities within the broader community.

Acronyms

AAM	Australian Association of Myotherapists
ANTA	Australian National Training Authority
AQF	Australian Qualifications Framework
AVCC	Australian Vice Chancellors' Committee
CBT	Competency based Training
CBE/T	Competency-based Education and Training
DEST	Department of Education Science and Training (formally ANTA)
DEEWR	Department of Education, Employment and Workplace Relations (Formally DEST)
HE	Higher Education
HSU	Health Services Union
ITABS	Industry Training Advisory Boards
NFROT	National Framework for the Recognition of Training
NIRMA	National Institute of Registered Myotherapists of Australia (formally NIRMA)
NOOSR	National Office of Overseas Skills Recognition
NTQC	National Training Quality Council
OTFE	Office of Training and Further Education (Victoria)
PETE	Post Compulsory Education, Training and Employment (formally OTFE)
PMA	Professional Myotherapists of Australia
MBDS	Melbourne Based Dual-Sector University
RTO	Registered Training Organisation
PHEP	Private Higher Education Provider
TAFE	Technical and Further Education
VET	Vocational Education and Training

CHAPTER ONE
ORIENTATION TO THE STUDY

1.1 Introduction

Accreditation by the Victorian Office of Higher Education in 2004 of a world-first, four-year undergraduate degree: Bachelor of Health Science (Myotherapy) which has been developed and delivered by a private Higher Education Provider, places Australia at the cutting edge in education and training for an emerging physical therapy in the field of allied health.

The Myotherapy degree evolved from an Advanced Diploma of Myotherapy which was developed and delivered at a major Melbourne University as a competency-based curriculum in the Vocational Education and Training (VET) sector, in which the curriculum was based on Competency Standards of the relevant industry or profession. This Advanced Diploma was accredited in 1996 under the principles of the National Framework for the Recognition of Training (NFROT). The focus of this curriculum was therefore competency or outcome-based, whereas the degree has been essentially developed as content-based curriculum.

Commenting on the differences between these types of curriculum, Ilic (2002, p. 2) contends that within Higher Education (HE) in Australia there has been a change of focus from content-based to process-based curriculum. He states that "content-based curriculum, usually geared to cognitive development in students, is slowly shifting to process-based educational experience with a focus on the development of skills in the affective domain". These curricula have also been differentiated by Lonsdale (2003 p. 12) who suggests that: "a content-based education focuses on what students have been taught, an outcomes-based education focuses on what the students have learned; that is, on their skill and understanding".

For the purpose of this study the term 'competency-based' is used to describe a learning program or units within a learning program in which the primary focus is on what a person can do at the completion of a program, rather than focusing on the content or process involved in delivering that program.

In Australia, Competency-based Education and Training (CBE/T) is well entrenched within the VET sector. However, there appears to have been very little 'flow-on' affect to the HE sector. A large number of HE programs have components which might be regarded as outcome-based, but which are not formally recognised as competency-based. Anecdotally, there appears to be a perception in the HE sector that CBE/T is too workplace-oriented and not theoretical enough and is viewed as a 'constraint' on teaching and assessment methods, which creates a resistance or avoidance of, competency-based programs in the HE sector.

As with many other HE programs, Myotherapy requires that 'content' as well as 'outcome' are emphasised in attaining the necessary underpinning knowledge, the discipline-specific skills, and generic attributes required by the Competency Standards of the Myotherapy profession. It appears, therefore, an opportune time to consider the implications of formally integrating a competency-oriented approach into those units of a HE degree-program which emphasise procedural knowledge.

1.2 The Aim of the Research

This study was prompted by the researcher's experience in the development of the Myotherapy program from its inception as a competency-based program in the VET sector to its development as a content-based program in the HE sector. This evolvement in Myotherapy education stimulated my interest into the value of formally incorporating elements of competency-based learning into the HE Myotherapy program. Thus, the Myotherapy course has provided a case study as the lens through which consideration of the VET/HE sectors and CBE/T are conducted.

The aim of this study has been twofold: to consider the concept of CBE/T in Australia through reviewing the attitudes and perceptions of participants interviewed regarding CBE/T; and to explore the views of those participants in relation to formally incorporating a competency-based approach into the procedural-oriented units of a content-based Myotherapy curriculum within the HE sector. These objectives have been considered through a review of relevant literature, document analysis, and interviews on course development and delivery. This thesis addresses the following question: *Is there a place for a competency-based approach to be formally integrated into the procedural or task-oriented units of a HE curriculum?*

1.3 Study Design

The focus of this thesis has been to review the competency-based approach which has been a feature of the VET sector in Australia over the last fifteen years, and to consider the implications of introducing aspects of competency-based learning into the task-oriented units of a content-based degree program such as Myotherapy. The research employs a qualitative methodology using the grounded theory approach depicted by Strauss and Corbin (1990) as a research method which develops an inductively derived grounded theory about a phenomenon. The phenomenon in this case was the recently accredited Myotherapy degree curriculum.

The study was conducted by collecting and examining relevant literature pertaining to competency-based learning programs at both VET and HE levels in Australia. This was combined with data provided by participants who supplied written answers to nine focus questions in the form of a descriptive survey. The survey acted as a means of introducing the participants to the area of research and the answers provided by the participants in the survey were expanded upon in semi-structured, in-depth interviews which followed. The participants were chosen for their experience in teaching, lecturing or curriculum design in the VET or HE sectors. The data collected was coded and analysed during and after the collection process, while interpretation of the data took place on completion of the analytic process.

1.4 Evolvement of Myotherapy in Australia

Myotherapy can be described as the treatment and management of musculoskeletal pain. It involves extensive physical evaluation and an integrated approach to affected muscles, joints and nerves. It is used in both the treatment of acute or chronic conditions and in the area of preventive management. Myotherapy involves the use of soft tissue and skeletal mobilization, and also includes myofascial dry-needling, electrical stimulation, pain management, and prescriptive exercises. Myotherapy is based on the pioneering research conducted by Travell and Simons (1983) who established a neuro-physiological basis in myofascial pain and dysfunction. Its application requires a comprehensive theoretical knowledge of biomedical and clinical sciences combined with a proficiency in clinical reasoning and the dexterity to utilize discipline-specific manual skills. A more detailed explanation of this type of therapy is provided in appendix A.

In 1985, the Victorian state government accredited a certificate course in Remedial Massage which was to be delivered within the Technical and Further Education (TAFE) sector of a long established, Melbourne based, dual-sector University hereafter referred to as the MBDS and was upgraded to an Associate Diploma of Applied Science in 1990. The MBDS curriculum combined scientific principles with practical training in the various manual and supplementary modalities used to alleviate musculoskeletal pain. However, it soon became evident that the term 'Remedial Massage' did not adequately describe the collective modalities being taught within the curriculum, and it was decided that a more apt description would be 'Myotherapy'. In 1991, the Victorian State Training Board approved a request from MBDS, the student body at MBDS, and the Australian Association of Myotherapists (AAM), for the course content and name to be changed to 'Myotherapy'. In 1995 the course was upgraded to a three-year, full-time Advanced Diploma in Myotherapy. This program was developed in conjunction with the representative professional body, and designed to meet the relevant competency standards for Myotherapists. It was endorsed by the Health Industry Training Board (Victoria) in August, 1995.

This course was considered by the Faculty of Biomedical and Health Sciences and Nursing at MBDS as having the potential to be delivered as a degree program. Consequently, a Course Advisory Committee was formed to establish a three-year degree - Bachelor of Applied Science (Myotherapy) and to develop a conversion program for students to upgrade from the Advanced Diploma. However, the implementation of this conversion program foundered, primarily due to difficulties in obtaining the additional government-funded university places required to deliver the course at degree level.

The Advanced Diploma of Myotherapy curriculum was developed at MBDS for the Office of Training and Further Development (OTFE), and delivered at MBDS in the 1990s as a three-year full-time competency-based program (prior to the introduction of National Training Packages). It remained as an accredited course until the 31st December 2003. In the late 1990s, private providers in the form of Registered Training Organisations (RTOs) became a major feature within the VET sector in Victoria and three individual RTOs commenced delivery of the Advanced Diploma during this period.

In 2003 this course was substantially modified by the Office of TAFE and replaced with an Advanced Diploma of Remedial Massage (Myotherapy) - developed in similar fashion to the National Training Packages and accredited under *Section 22 of the Victorian Qualifications Authority Act 2000*. The National Training Packages of Certificate IV Massage and Diploma of Remedial Massage were both incorporated into this Advanced Diploma. This fundamentally changed the focus of the course from Myotherapy as a distinct entity in which massage had played a small part, into a learning program with massage as a focal point.

At the same time these modifications were being implemented, a private, 'not for profit' HE provider, hereafter referred to as the PHEP, made the decision to pursue the development of a four-year, full-time, Bachelor of Health Science (Myotherapy) program. In July 2002, the PHEP presented a submission for the accreditation of this degree, and applied to the Office of Higher Education Victoria for authority to conduct this degree. After reviewing this submission, the Office of Higher Education granted accreditation in March 2004, and delivery of the program commenced immediately.

In considering the differences between learning programs in the VET and HE sectors, a significant difference lies in the fact that within a VET program every unit is formally designed in a competency-based manner and therefore the complete package is competency-based. However, in HE sector courses there is a tendency to separate the elements of the course which are considered to have a cognitive orientation from those with a strong procedural or task orientation. The task-oriented elements in the HE sector may not be formally designated as being competency-based but they are designed with an outcomes-based orientation, as illustrated in the Myotherapy degree program.

The Myotherapy HE curriculum was designed to meet the competency standards of the profession, and contained delivery strategies, learning outcomes, a syllabus of subjects containing the required underpinning knowledge and discipline-specific skills, together with sequential prerequisite content material, allocated participation time and assessment methods and procedures. This curriculum was developed principally as a content-based program which focused on a thorough and comprehensive knowledge in the clinical sciences, supported with communication

and management skills, an appreciation of legal and ethical issues, and an understanding of psychological issues. This knowledge base combines with an extensive repertoire of sophisticated manual skills.

It has been argued by Biggs (2003) that knowledge can be divided into four distinct categories, which he describes as: declarative knowledge (theoretical knowledge), procedural knowledge (attainment of skills), conditional knowledge (circumstances for using these skills) and functional knowledge (combination of the previous three categories). These categories are more fully explained in Chapter 3 (Figure 3.1) and appear to provide an excellent means of 'focusing' on the content, delivery, and assessment of individual units when developing undergraduate learning programs such as Myotherapy.

1.5 Curriculum

Teitlebaum (2007, p. 2) estimates that there are more than 120 definitions of curriculum in the related professional literature. However, for the purpose of this research, the following selected examples have been deemed as most relevant. One of the earliest definitions of curriculum is noted by Teitebaum (2007) when he cites Bobbitt (1918, p. 42) who considered curriculum to be: "That series of things which children and youth must do and experience by way of developing abilities to do the things well that make up the affairs of adult life". Later, a general definition cited by offered by John Kerr (1968, p. 16) who defines curriculum as: "All the learning which is planned and guided by the school, whether it is carried out in groups or individually, inside or outside the school", (quoted by Kelly 1999). This is similar to the definition offered by Print (1993, p. 9) who defined curriculum as: "all the planned learning opportunities offered by the organization to learners and the experiences learners encounter when the curriculum is implemented".

Stenhouse (1975, pp. 4-5) likened curriculum to a recipe for a dish which is first imagined as a possibility, then becomes the subject of experiment - but like a recipe it may vary according to taste. However, a more recent definition in the area of health education suggested by Wojtezak (2002, p. 216) is that curriculum is: "An educational plan that spells out which goals and objectives should be achieved, which

topics should be covered and which methods are to be used for learning, teaching and evaluation".

Commenting on curriculum in Higher Education in the United Kingdom, Barnett and Coate (2004, p.2) argue that: "The idea of curriculum has not been seriously engaged within the higher education debate and policy formation and even in its practices. Curriculum design in Higher Education is not yet a properly reflective practice". Tertiary education may have at one time been seen as the final component in the formal education and preparation process, but this is no longer the case. Any form of tertiary curriculum should, where possible, prepare the learner for a lifetime of continuing change - and the ability to cope with ongoing educational requirements.

Smith (1996, p. 9) describes a praxis model of curriculum, which he suggests adds to the more general process model by the inclusion of collective well-being and emancipation of the human spirit. The Collins Concise English Dictionary (1991, p. 899) describes the term 'praxis' "as the practice of a field of study as opposed to the theory". Macpherson (1996) also uses the term praxis when he explains and defines curriculum in the following comprehensive manner:

> Curriculum is a praxis – a dynamic interplay of theoretical concepts and professional work within a critically reflective mindset. As a praxis, curriculum has no particular starting point – it is a constantly evolving and living organism made up of an interacting set of ideas, people, space, time, and resources. It is the set of learning environments to which learners have access; of learning activities which learners experience; and of learning outcomes which learners achieve, all within the immediate contexts of an individual teacher's (or curriculum practitioner's) and an institution's mission/policy/vision (including its organisational arrangements) as well as the broader contexts of community and society (p. 2).

Macpherson suggests that this approach to curriculum may be carried out in a variety of ways, depending on the resources available, the dispositions of teaching staff, and the particular needs and interests of those enrolled. This curriculum would reflect the broader principles associated with adult learning, critical pedagogy and teaching in higher education institutions. In integrating curriculum theory and practice, a theoretical process was suggested by Stenhouse (1975) in the following terms:

> A curriculum is an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice (p. 4).

For the purposes of this study, the term curriculum refers to: "a planned program of learning opportunities, in which the aim is to enable the individual to function in their present environment and prepare them to operate within a future environment".

1.6 Education and Training

The term CBE/T implies a connection between the words 'education' and 'training'. However, although these terms are not necessarily exclusive to each other, they do have differing implications. Although it has been customary to equate the term 'education' with primary or secondary schools and universities, the term 'training' is normally used in relation to vocational or technical instruction - with connotations of specific task-oriented skills requiring a standard of competency with limited cognitive components. Harris, Guthrie, Hobart and Lundberg (1995, p. 15) contend that prior to the implementation of CBE/T there were differing perceptions of training, citing Snook (1973) who describes 'training' as a narrow preparation to enable a person to perform a function or task, whereas the term 'education' refers to a broad preparation of a person for life skills.

For the purpose of this study, the term 'Competency-based Education and Training' (CBE/T) is used to describe a learning program designed and developed to meet the competency standards of a relevant industry or professional body. These standards are a compilation of the requirements considered necessary for a person to be regarded as competent in a particular occupation. Learning programs using this type of approach may be oriented to the narrow rigidity of a workplace setting, or may incorporate the expectations and values of the broader community

Harris et al. (1995, p. 5) suggest that those who wish to differentiate between 'education' and 'training' believe that when a university is involved in vocational training, the curriculum content is sufficiently broad and deep to significantly influence the student as achieving over and above mere vocational knowledge and skills. However, these authors purport that the learning process referred to as CBE/T does not exclude the content which effects the development of the student in a holistic manner, and that content which is broad and comprehensive may not only be included, but also be expressed and assessed in terms of competency.

Almost all forms of occupational activity require the acquisition of knowledge and skills involving some measure of formal education and training. The process by which the knowledge and skills are acquired usually includes some form of evaluation or assessment to gauge whether the activity is being carried out with an acceptable degree of competence. This applies equally to the person who is being taught the skills required to lay bricks and the person who is being taught the skills required to carry out heart surgery. The difference lies in the emphasis placed on the ratio of underpinning educational or cognitive requirements of the discipline - and of course in the consequences of the activity. This is illustrated in figure 1.1.

Trade Proficiency	Technical Proficiency	Professional Proficiency
Greater emphasis on manual skills _____ Less emphasis on underpinning cognitive skills	Equal emphasis on manual and underpinning cognitive skills _____ Equal emphasis on manual and underpinning cognitive skills	Greater emphasis on underpinning cognitive skills _____ Less emphasis on manual skill
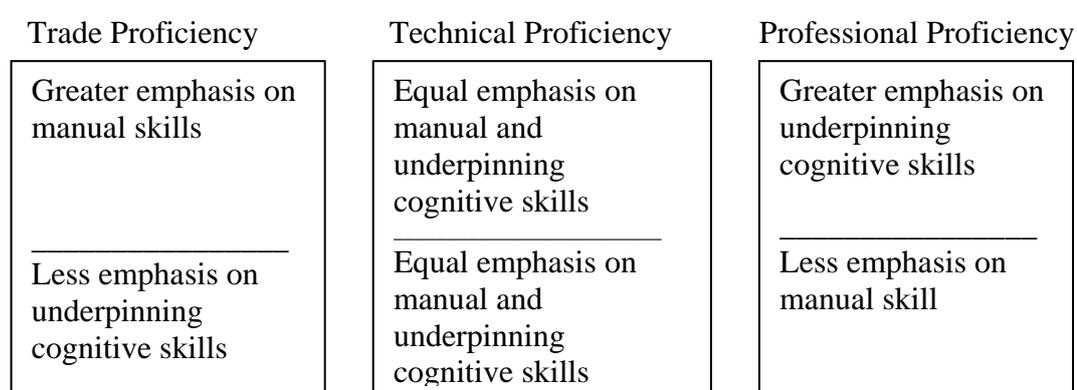
Figure 1.1 Manual skills and underpinning cognitive skills (Tritton 2006)

The above learning of skills might be divided into practical or theoretical skills and attributes but the combination of both can provide greater mental and physical dexterity. Although the manual dexterity or skill may vary, most of us would like to think that the prosthesis engineer creating an artificial limb - or the heart surgeon about to perform an operation on our person - were as least as skilled as a highly trained violin maker.

Although all the above vocations all require education to provide knowledge and training to acquire skills, the difference lies in the amount of underpinning cognitive knowledge required to perform each task. At either end of the occupational, educational and training spectrum, there are obvious differences in the types of skills required to complete the occupational tasks. However, these differences become less distinguishable in the mid-point of the spectrum where the highly skilled professional health worker or technician is called upon to carry out tasks requiring a high degree of cognitive judgment.

Competency describes the ability to perform a task in a given context and comprehend the principles and concepts which underlie its application in order to transfer that knowledge and skills to new tasks and situations in both vocational and social settings. Competency-based Education and Training describes a method of instruction in which learning programs or curricula are designed and developed to meet the competency standards of a relevant industry or professional body. These competency standards are a compilation of the requirements which are considered necessary to be regarded as competent in a particular occupation. Learning programs using this type of approach may be too oriented to the narrow rigidity of a workplace setting, or they may incorporate the expectations and values of the broader community. Competency-based learning programs have been part of the Australian education system for over fifteen years, but its implementation has largely been confined to the VET sector. their incorporation into different levels has created a great deal of discussion regarding usefulness and even meaning.

Competency-based programs in the VET sector are often seen as having a large component of 'on-the-job training' conducted in settings associated with manufacturing, agricultural, or service-oriented industries. However, 'on-the-job' training is also a requirement for most professions in areas including teaching and health sciences, but is couched in discipline-specific terminology. For example, law graduates are required to complete 'articles', nurses are required to complete a staff-year, medical practitioners are required to complete internships, and teachers must complete a practicum. However, the practical components in these HE courses are not formally referred to as competency-based.

Within the VET sector, the current method of delivery is through the use of National Training Packages that consist of competency standards developed by the relevant industry and endorsed by the Department of Education, Science and Training (DEST) which in December 2007 DEST was incorporated Department of Education, Employment, and Workplace Relations (DEEWR).

These National Training Packages provide the guidelines to be used by TAFE Collages and Registered Training Organisations when developing curriculum. In describing these Training Packages Smith (2002) comments that:

> While Training Packages offer many opportunities for a wide range of students and workers in a wider variety of vocations (and locations) than ever before in Australia, their emphasis upon workplace delivery has led many to view them as narrow, static, unlikely to develop higher order skills, and of little relevance to the learner's personal development (p. 11).

The National Training Packages and other competency-based programs used in the VET sector include 'Key Competencies' developed by the Mayer Committee (1992). These are often referred to as 'Employability Skills', and can be described as the knowledge and skills that might be considered generic to all occupations and essential for effective participation in the workplace. These competencies may also facilitate the transfer of knowledge and skills acquired in learning programs that can be transferred to the workplace.

The HE sector tends toward a more holistic approach to education and skills, but also uses the term 'Employability Skills' as well as other terms such as 'Generic Skills', and 'Graduate Capabilities'. These terms refer to the skills and qualities regarded as important in HE, and include cognitive skills such as logical and analytical reasoning, intellectual curiosity, problem solving, effective communication skills, teamwork skills and capacities to identify, access and manage knowledge and information. Another term used in the HE sector is 'Graduate Attributes', which are described in the DEST Higher Education Report for the 2001-2003 triennium as a core of attributes consisting of: knowledge, thinking, practical and personal attributes. Both VET and HE sectors recognise 'Discipline-specific Skills' which are the skills and knowledge necessary to complete tasks that are relevant to a workplace, and accept that these skills require varying levels of complexity and underpinning knowledge and a certain amount of workplace or on-the-job training.

Harris et al. (1995, pp. 4-5) suggest that CBE/T has the propensity to polarise perceptions, and suggest that much of the differing opinions expressed by educationalists regarding CBE/T concerns perception of 'narrowness of content' - or being too employment-focused and not broad enough to include the 'life-skills' of reliability, integrity and ethical values. These perceptions may have contributed to the abbreviation of the term Competency-based Education and Training (CBE/T) to Competency-based Training (CBT), and might indicate that many people equate this type of learning program to training - with less emphasis placed on educational or cognitive aspects of the process.

In addressing the question: *Is there a place for a competency-based approach to be formally integrated into the procedural or task-oriented units of a HE curriculum?* this thesis makes a significant contribution to the debate on the applicability of CBE/T in higher education, whilst also providing insight into the delivery of CBE/T programs in the VET sector through the selected case study. In the course of the research, the data collected from participants, indicates a generally positive attitude to the concept of CBE/T and its applicability in certain areas of HE curricula.

The study also identified of the concept of 'protocolic' and 'functional' knowledge as a key to differentiating between the intended outcomes in the VET and HE sector curricula. Within the VET sector the focus of the intended outcome is the ability to replicate procedural tasks in differing circumstances or environments, based on sets of industry-based criteria and may be described as 'protocolic' knowledge. Whereas, within the HE sector the focus of the intended outcome is the capacity for analytic inquiry which is achieved by combining declarative, procedural and conditional knowledge to produce 'functional' knowledge (Biggs 2003), which in the area of health may be termed clinical reasoning.

This thesis uses the development of Myotherapy programs in both VET and HE as a case study to explore the intersection and applicability of CBE/T in HE. This study considers the concept of CBE/T in Australia through reviewing the attitudes and perceptions of 10 participants interviewed regarding their experience of CBE/T. In this thesis, the term 'attitude' is used to refer to a way of thinking, acting or feeling, and the term 'perception' is used to refer to the process of using one's experiences to formulate views and opinions.

CBE/T has had an enormous impact on the current Australian education system and Chapter Two provides an overview of the rationale and development of CBE/T in Australia, as well as some implications that its introduction has had on the tertiary education sector. Chapter Three provides a detailed literature review with a focus on competency as a methodology of delivery and outcome. Chapter Four discusses the methodological approaches of the study and theorises the methods selected. In particular, the selection of grounded theory enables the perceptions of practitioners in the fields of both education and Myotherapy to be represented at a time of

curriculum change. Participants' responses are presented in Chapter Five to explore the different views of tertiary professionals in relation to formally incorporating a competency-based approach into the procedural-oriented units of a content-based Myotherapy curriculum within the HE sector. The final section, Chapter Six concludes by signalling the need for curriculum to embed critical thinking and analytical skills in order to be a functioning professional in the workplace.

CHAPTER TWO

CONTEXT OF THE STUDY

2.1 Introduction

From the early 1990s, the emergence of competency-based programs at both state and National levels, and ten years later the introduction of National Training Packages, have caused radical changes in teaching, learning and assessment processes within the VET sector, and to a lesser extent in the HE sector. Therefore, in accordance with the aims of this thesis and in order to appreciate the sequence of events in the evolution of CBE/T in Australia, this chapter provides an overview of relevant reports, recommendations and reviews pertaining to CBE/T.

Education and training in Myotherapy commenced in the VET sector at a time when CBE/T was being formally introduced. The Advanced Diploma of Myotherapy was developed in consultation with industry representatives and based on the relevant competency standards. This early program contained seven basic units of competency, allowing for a holistic learning program with integrated content and outcomes-based units within the curriculum (see Appendix B). However, the introduction of National Training Packages in the VET sector established a system in which all units within courses were developed, delivered and assessed in a competency-based manner, regardless of whether they had a cognitive or task-based orientation. In this context, the present study investigates the suitability of the formal introduction of the concept of CBE/T into task-oriented aspects of a HE curriculum.

As with many other countries, in Australia the VET sector is seen as being positioned between the general secondary school system and the HE sector. VET programs are offered by some secondary schools - and secondary courses are delivered in TAFE colleges. The VET sector also impacts on the HE sector through the articulation process occurring between sectors.

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The term VET is used in many countries, with some variations, to describe the development and furtherance of the skills and knowledge required of an individual to be productive in a given occupation. It has been suggested by Smith and Keating (2003, p. 3) that VET programs have a number of features which help define the term including: an association with industry; association with a job or task; learning on and off the job; and skills based. However, these features are not confined to the VET sector. Many university courses are also vocational, requiring the attainment of specific levels of knowledge and skills. There are also courses such as those in Nursing and Paramedics which conduct competency-based learning programs in both the tertiary and TAFE education sectors.

2.2 Rationale for Competency-based Education and Training

One of the principal reasons for the formal introduction of CBE/T was to provide training programs with outcomes which were deemed necessary by the relevant industry representatives and professional bodies for entry into a particular occupation. These programs were primarily task-oriented or vocational in nature. In this context, the term 'competency' has been around for some time and is used to describe the ability of a person to perform a task in a given context, and to comprehend the principles and concepts underlying its application in order to be able to transfer such knowledge and skills to new tasks and situations in both vocational and social settings. Here, although the learning of skills might be either practical or theoretical, the combination of both can provide greater mental and physical dexterity. For example, without the ability to read we may gain theoretical and underpinning knowledge by verbal communication and we can acquire motor skills by practical application and refinement, however the ability to read allows us to attain greater knowledge in a self-directed manner with less reliance on others for information.

A key aim in the concept of CBE/T is to provide the educator, learner, and relevant industry or professional body with an education and training program that is clear and transparent in both design and measurement of achievement. To achieve this aim, each unit within a training program must be presented in a clear, precise and unambiguous

manner, and the method of measuring successful attainment must be fair, flexible, reliable and valid. The purpose and nature of each unit must also be transparent, with clear, definite and stated relationships between the unit and the overall program.

Competency-based training programs have been developed by government or private institutions in conjunction with relevant industries and professional bodies, and designed to meet the competency standards formulated by these organisations. Smith and Keating (2003, p. 52) state that: "Competency standards provide the basis for VET courses and qualifications, and they are the means for common recognition of knowledge and skills and of qualifications around the country".

This concept of national portability was taken into account when the Advanced Diploma of Myotherapy was developed as a competency-based program at the MBDS University. Development and accreditation of this course took place prior to the implementation of National Training Packages, and was based on Competency Standards developed by the National Institute of Registered Myotherapists Australia (NIRMA), the professional body representing Myotherapists at that time (previously AAM). The resulting curriculum contained teaching and learning strategies, individual units containing the required content and underpinning knowledge, as well as associated discipline-specific skills, allocated participation time and assessment procedures.

2.3 Learning Process and Competency-based Programs

Harris et al. (1995, pp. 16-17) suggest that there are three major schools of educational philosophy whose theories can be considered as either supportive or unsupportive of CBE/T. These theories regarding learning and teaching styles and their relevance to CBE/T and in particular to the Myotherapy curriculum are considered below.

The first of these is the behaviourist school which appears to be highly supportive of task-oriented approaches such as CBE/T. Harris et al. (1995) cite Skinner (1953) as the major proponent of this theory in which he suggests that there can only be speculation as to what occurs during the learning process, and therefore the only way to assess this process is to evaluate a person's behaviour or performance as they learn. Behaviourists

promote the theory that the acquisition of knowledge is aided by rewarding a correct response (positive reinforcement) rather than punishing an incorrect response (negative reinforcement). In CBE/T this can often be accomplished with immediate feedback on the completion of criteria-based tasks. This aspect of behaviourist theory is also supported in an essential element of CBE/T - public disclosure of the intended outcomes (progressive or final) prior to commencement of the task, module, or subject unit.

Secondly, there is the cognitive school of thought, which Harris et al. (1995) consider the principal proponents to be Bruner (1960), Ausubel (1963) and Gange (1965). This theory proposes that knowledge is acquired by the continuous refinement of schemata, in which, understanding formed by past experiences and new experiences are evaluated. This theory is not at odds with CBE/T in that the tasks to be performed grow progressively more complex as more information and skills are acquired.

Thirdly, there is the humanist school of thought, whose principal proponents Harris et al. (1995) consider to have been Maslow (1970) and Rogers (1983). Humanists believe that a person should be regarded as a holistic being, and emphasises the individual differences in learning processes. This theory tends to be at odds with the predetermined and prescriptive nature of CBE/T.

Another educational theory is the concept of 'tacit knowledge' proposed by Polanyi (1967) is also useful for understanding the learning processes required in CBE/T and in particular for those competencies which are required in the practice of Myotherapy. Polanyi explains that there are types of knowledge that cannot be easily analysed, and these are conceptualised as tacit knowledge. Polanyi explains this phenomenon by theorizing that, if we attempt to analyse the skills and mental processes required in riding a bicycle into elements such as balancing mechanisms, co-ordination of muscle movements and eye movements - and even provide a live demonstration of this skill - this would not provide the information required to competently carry out the task. If we tried to consciously consider all the skills required as we carried out this task we would probably fall off. It requires unconscious knowledge or internalisation of all the component skills to allow us to concentrate on the overall goal. This suggests that tacit

knowledge is gained and internalized through continued exposure to completing certain tasks, such as occurs in a competency-based learning program.

Although the behaviourist and cognitive schools of thought are of use in understanding CBE/T, the development of skills through 'tacit knowledge' proposed by Polanyi (1967) describes one of the most important features of Myotherapy where the development of tacit knowledge and skills is acquired in what is termed 'palpatory literacy'. This is the development of a student's palpatory skills to locate, identify, assess and treat musculoskeletal dysfunction. This type of skill evolves and develops in a similar fashion to the playing of a musical instrument, and improves with ongoing repetition of certain movements. It also requires unconscious knowledge which is difficult to analyse, but can certainly be described as the internalisation of underpinning theoretical knowledge combined with functional or acquired skills.

The attainment of this type of knowledge and skill can be difficult to evaluate or grade, and must be assessed from a predetermined, set criteria. Furthermore, the assessment of this type of skill must be conducted using a holistic approach, and determined by an experienced practitioner. In order to neutralise the subjectivity associated with this type of assessment in the Myotherapy degree program, two examiners assess the relevant task simultaneously.

2.4 Development of CBE/T in Australia

The concept of Competency-based Education and Training originated in the late 1980s in order to develop curricula based on the competency standards of associated industries. At this time the Myotherapy curriculum - one of the first learning programs to be developed as a competency-based curriculum prior to the advent of National Training Packages, was evolving within the VET sector of MBDS as a three-year full-time Diploma.

In order to implement the change to a competency-based approach in education and training, the Commonwealth, State and Territory Training Ministers approved a major change to the VET sector in 1990. This change had two components, the first of which

was the introduction of competency-based training in which curricula were to meet work-related competency standards for each major industry, and the establishment of Industry Training Advisory Boards (ITABS) with representatives from employer groups and unions assisting in the development of standards and accredited courses for each industry. In order to accomplish this, National Industry Competency Standards were introduced, with a National Training Board established in 1990 to oversee and help develop industry standards.

The second major reform stemmed from a 1991 report of the Training Costs Review Committee (Deveson, 1991) which had a considerable impact on the VET sector. The major implication of this report was the introduction of an 'open-training' market in which private training providers were licensed to develop and submit courses for accreditation and delivery to the relevant ITABS in competition with TAFE in the VET sector.

Standardisation of training and qualifications at a National level was also introduced in 1992 with the creation of a National Framework for the Recognition of Training (NFROT). This was to be the forerunner to the Australian Recognition Framework which became the Australian Quality Training Framework in 2002, to create standards and maintain quality control in TAFE colleges and privately Registered Training Organisations involved in teaching accredited VET courses.

The next report produced in this sequence of events was from the Australian Education Council (1991) chaired by Brian Finn. This recommended a number of targets for the participation of young people completing post-compulsory Education and Training, to be achieved by the year 2001. The Finn report also recommended the establishment of a group to develop a list of 'Key Competencies' for inclusion into these training programs. Accordingly, under the chairmanship of Eric Mayer in 1993, a committee produced the Mayer Report which developed seven key competencies with three levels of performance.

Following these reports, in agreement with the states and territories, in 1994 the Australian Qualifications Framework (AQF) was established to create an integration of

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qualifications in secondary, vocational and higher education, which was to also serve as a precursor to the introduction of some VET programs into secondary schools. Further acceptance of nationalisation in education was confirmed with the establishment of the Australian National Training Authority (ANTA) established in 1992, which was formally commissioned in 1994 to have the major responsibility for policy in the VET sector. This ongoing period of change was to continue with the 1997 endorsement of 'National Training Packages' consisting of qualification rules, competency standards, and assessment guidelines which act as guidelines for curriculum development. On the 1st July 2005, the functions and responsibilities of ANTA were transferred to the Department of Education Science and Training (DEST). With the change in Federal government in December 2007 DEST was incorporated into a new department, the Department of Education, Employment, and Workplace Relations (DEEWR).

2.5 National Training Packages

The introduction of National Training Packages was the next important change in implementing training reforms in Australia. As with the introduction of CBE/T, this reconstruction in learning programs was directed at the VET sector to provide guidelines for education and training in which nationally-based units of competency were developed with the intention of creating a degree of cohesion and standardisation of training to provide portability of qualifications between various States and Territories.

The fundamental change to the VET sector in the form of National Training Packages began with an agreement by the Commonwealth, State and Territory Training Ministers to implement a National Training Framework on the 1st January 1998. This framework generated and introduced three significant changes. The first of these was to replace the curricula previously accredited by the Industrial Training Advisory Boards with Training Packages with curricula endorsed by the National Training Framework Committee (NTFC). The second change was the creation and national recognition of Registered Training Organisations (RTOs) that were to be self-evaluating and able to be established within TAFE institutes, secondary schools, universities, private educational organizations, or employer groups. The third change was to be a national recognition of

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qualifications, in which qualifications and/or statements of attainment issued by one RTO must be recognized by all other RTOs. This change shifted the equality of emphasis that had existed between training and assessment to that of assessment of performance relating to a set of performance criteria developed in consultation with relevant industry groups.

The introduction of National Training Packages had a major impact on the Myotherapy program in the VET sector by changing the focus of the course from a distinct program of treatment for musculoskeletal pain to a course which was primarily concerned with relaxation and remedial massage. This change was so extensive that in order to reflect the new focus of its content, the course was reaccredited as the Advanced Diploma of Remedial Massage (Myotherapy).

As previously mentioned, National Training Packages refer to the nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for specific industries and professional bodies. Training Packages are developed by Industry Skills Councils and endorsed by the National Training Quality Council (NTQC). A National Training Package does not constitute a curriculum, but can be considered as the guidelines from which a course of training is to be developed. National Training Packages consist of the specified 'Units of Competency' which constitute the learning outcomes required for a particular certification.

These Units of Competency are a compilation of a number of related tasks called 'Elements' or single tasks which are based on 'Performance Criteria'. The units of competency include a 'Range of Variables' that advise on the scope and context of delivery, and an 'Evidence Guide' which identifies the critical aspects, knowledge and skills to be demonstrated. In addition to discipline-specific skills, each training package also includes specific units of competency required to integrate the key competencies (Smith & Keating, 2003, pp. 147-175).

National Training Packages do not contain subject outlines, content, objectives or assessment procedures. However, many of the units of competency are common to a number of courses within a particular area of training. These common units of

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competency (together with others which are specific to a particular course) are arranged in the form of National Training Packages. Institutions accredited to conduct units of competency are free to deliver the training in a variety of settings, and the level of associated underpinning knowledge at each institution can be diverse.

National Training Packages have resulted in a major deregulation of education and training within the VET sector, and their introduction at a time when teachers had just begun to accommodate the concepts associated with CBE/T has added another impetus for fundamental change in teaching and learning strategies within the VET sector. As with the introduction of CBE/T National Training Packages have created much controversy amongst those involved in the educational process. For example Smith and Keating (1997) contend that:

> Training Packages take competency to its 'logical extreme' in that training is focused on the ability to competently complete a task rather than the methodology used in acquiring the skills needed to competently complete the task (p. 105).

Scollay (2000, p. 3) comments that: "The key to the successful application of Training Packages in any learning environment is the ability of the teacher /trainer to develop and customize the learning strategies within the framework of competencies and assessment that the packages provide". This customizing of the learning strategies to develop a curriculum or syllabus from the Training Package strategies was seen by some, such as Waterhouse (2000), as an opportunity for innovative teachers to explore and create new methods of delivery. However, commentators such as Smith (2002) argue that:

> Others see this reliance upon individual teacher's or trainer's expertise as a possible route to disaster, with smaller and/or less scrupulous providers perhaps leaving it to under-qualified teachers to struggle as best they could to teach to units of competence (p. 7).

In a similar vein, Malloch (2000, p. 22) argues that individual customizing of learning strategies is erratic, and likens training packages to: "a mail order dress; you read about it in the catalogue, read the description, order it, take delivery of it, and then you try to alter it to fit your specific circumstances".

In summary, Smith (2002) provides the following guide of Misko (2001, pp. 5-9) who firstly summarises the advantages of Training Packages as: qualifications are nationally portable; industry involvement in competencies and qualifications relate to their sectors;

and provision of a ready-made framework for training in workplaces with flexibility in delivery and assessment. In the same text, Misko then lists the disadvantages as: introduced too hastily; flexibility can lead to variability in quality; teachers and workplace supervisors require advanced skills to structure learning activities, assessment pathways may be suspect in quality; underpinning knowledge is down-played; and may not be suitable for students who have no workplace experience.

However, we have yet to see the results of this fundamental alteration to vocational training in the VET sector. Training Packages should not be seen as the epitome of CBE/T, but rather as one of a variety of models by which competency-based programs might be delivered. As with CBE/T, the system of National Training Packages will have its subscribers and detractors, with some seeing the benefits outweighing the difficulties. These Training Packages will, no doubt, undergo the normal evolutionary changes, and is probably too early to pronounce judgment on their overall effectiveness.

This chapter, in discussing competency based education and training in the Australian and Victorian context, provides a basis for the study to proceed in investigating the applicability of formalising the inclusion of a CBE/T approach into those units of HE curricula which contain a strong procedural focus. In Myotherapy, the case explored in this thesis, the utilisation of a CBE/T approach would be applicable in units for clinical practice but not for areas of declarative knowledge, for example, anatomy, physiology, nutrition, biophysics and clinical diagnosis, all of which require strong content focus rather than an emphasis on outcomes. CBE/T can contribute but not be the sole focus for units of study.

In order to provide a basis for the attitudes and perceptions of the various educators participating in this study towards competency-based learning theory and programs, the following Chapter Three broadly examines relevant texts, articles and research papers that have been published over the past 10-15 years which focus on competency as a methodology of delivery and outcome in both the VET and HE sectors. This provides an important facet in understanding of the attitudes and perceptions of the educators towards the premise of competency-based learning and its development and delivery.

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CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

As indicated in the previous chapters, education and training in Myotherapy developed into a competency-based Diploma in the early 1990s, and evolved to become a content-based degree program in the HE sector in 2004. In this context, the present study conducts an evaluation of the advantages of integrating aspects of competency-based learning into the task-oriented units of the Myotherapy degree program. It draws upon literature that debates and critiques the implementation of CBE/T in post secondary education at both state and national levels in Australia, to form a basis from which questions in a descriptive survey and semi-structured interviews are derived.

CBE/T programs were introduced in Australia in 1992 to form a major component of the National Training Reform Agenda, primarily aimed at the VET sector. These programs sought to provide a highly skilled and flexible labour force to service the needs of national industries in a growing and competitive global market (Smith & Keating 2003). These programs were derived from similar systems that had been implemented in the previous decade in America, Europe and the United Kingdom.

CBE/T has not been universally accepted nor is it regarded as the panacea to any perceived difficulties associated with the learning process. The work of Lundberg (1995), Anderson (1999), Angus (1999), Thomson, Mathers and Quirk (1996) and Smith and Keating (2003) offer examples of differing opinions on the concept and application of CBE/T.

Clearly, controversy over competency–based programs will continue within the VET sector, and any implementation of CBE/T that may occur in the HE sector will have its champions and detractors. Regardless of which group an educationalist belongs, it is highly likely that they will be affected in some way by this fundamental global change in teaching and learning strategies. Therefore, as competency–based learning programs continue to evolve, it is hoped that this research might contribute to the debate in a constructive way.

3.2 Defining Competency

The meaning of competency has been the subject of much debate, and the following examples of views regarding the meaning of the term 'competency' indicate the difficulty in obtaining a precise and universally acceptable definition. This lack of clear definition was recognized by Hoffmann (1999) who stated that:

> The term competency is multi-faceted. Some have defined the term narrowly by using a single element of human performance. Others have allowed their definition to overlap several of the elements of human performance. The shifting definition has brought with it a degree of confusion over the nature of the concept and its application (p. 275).

The meaning of competency is therefore a significant issue in the development and implementation of CBE/T. Evers, Rush, and Berdrow (1998) provide definitions of skills and competency, asserting that skills are composed of 'related sets of actions' performed in a particular sequence to successfully achieve a given task, and that competence in any skill might be judged by the level at which these actions are sequenced and performed. They suggest that the acquisition of skills is achieved by a learned progression from basic to advanced skills. However, others such as Norris (1991, p. 336) have argued that: "Competence appears to circumvent the issue of what people need to know, it shifts the balance of power firmly in the direction of practice and away from theory".

Stevenson (1995) postulates the idea that the term competence has evolved over time to imply different meanings in both vocational education and academic settings. He considers that the ordinary or everyday meaning of the word 'competence' has two facets: the first denotes that a person has completed a task or fulfilled an occupation in a proficient manner, and the second denotes a desirable outcome. For instance, a person may be described as a competent musician, athlete or teacher, but we are unlikely to describe someone as a competent murderer. Strebler, Robinson, and Herron (1997) note that different meanings to describe competency have evolved through common usage, with some using the term to describe behaviours and others using the term competencies to denote standards or minimum standards of performance. Chappell (1996) suggests that the 'meaning and context' of the term 'competency' is determined by the person using the term.

An important factor in defining the term 'competency' is the manner in which it is used. For instance, Watson (1993) considers that much of the debate in relation to competency-based learning programs relies on whether competency is perceived from a holistic or Cartesian viewpoint. That is to say- whether a person's competency is be judged on their overall attributes or simply on their ability to carry out a set of individual tasks relating to the workplace. This method of categorising competency as it relates to the workplace may stem from the fact that competency-based learning programs were first implemented in short, certificate level, vocational programs in which more emphasis was placed on task-oriented aspects of the program and less emphasis placed on cognitive requirements.

In America and the United Kingdom, the notion of competency tends to emanate from the holistic concept seen in Fletcher's observation (1991) that in Australia, vocational competency reflects the expectations of employment and focuses on work-related tasks, but in the United States, vocational competence is seen to include the underlying characteristic of the person. In the United Kingdom, the Further Education Unit (1984, p. 3) defines competency as "the possession and development of sufficient skills, appropriate attitudes and experiences for successful performance in a life role".

In Australia, the notion of competency is more vocationally focused and appears to be much more industrially oriented than it is in America or the United Kingdom. It has been suggested by Harris et al. (1995) that the tendency in Australia to focus more on the occupational aspects of competency and less on 'life skills', may have contributed to some of the misgivings that have accompanied competency-based programs. These programs might also be considered 'narrow' in that they have been employment-related with little reference to the values and attitudes advocated in graduate attributes of the HE sector. An example of this was an early Australian definition of competence provided by the Australian National Training Board (1992):

> The concept of competency focuses on what is expected of an employee in the workplace rather than on the learning process; and embodies the ability to transfer and apply skills and knowledge to new situations and environments (p. 29).

Hoffmann (1999, p. 276) considers that the term competency comprises three basic constituents: namely, *Observable Performance* which focuses on the ability to

complete a task; *Standards* which focus on the quality of the observable performance; and *Underlying Attributes* which focus on the required underpinning knowledge, skills and generic capabilities that can be modified in response to vocational or social requirements. The first two of these constituents are suited to simple task-oriented learning programs in which the objectives are based on performance, conditions and criteria, with little need to place much emphasis on the third criteria. However, in more complex task-oriented learning programs, a much greater emphasis is required from the third constituent.

The notion of competence being linked to performance was disputed by Noddings (1984) who argues that, if we view competence as a set of observable behaviors, then the same set or list of observable behaviors should be observed by anyone deemed competent in the same field. However, this is rarely if ever the case. She uses the example of competent teachers who may be observed using a variety of individual teaching styles to demonstrate that the nexus between competence and observable behavior is not immutable. This view is shared by Smith and Keating (2003) who state that:

> Competence itself is a difficult concept. In fact we cannot really assess competence from performance: we can only infer it. A person's competence is something that lies behind what he or she can actually do. We cannot observe his or her 'competence'. Competence has usually been described as an encompassing knowledge, skills and attitude, but the problem is how to ensure that CBT teaches and assess all three (p. 135).

Chappell, Gonczi and Hager (2000) contend that behavioral demonstration dictates that competencies in a curriculum or learning program need to be described in ways that make them measurable. This may not be difficult in relatively simple straight-forward tasks, but as with many other health-care related areas, the Myotherapy HE program involves diverse work practices involving complex interactions of various sets of knowledge skills and abilities which are not easily expressed in terms of behavioral objectives. For example, the application of clinical reasoning in Myotherapy (as with all aspects of health-care) requires both underpinning knowledge and the ability to perform practical assessment procedures - which combination must be assessed by both observation and a written or verbal justification for any procedural application.

3.3 Competency-based Education and Training

The intention of implementing CBE/T was to increase and improve the skills of workers for industry. However, it has been suggested that there had been very little research into the area of CBE/T prior to its implementation. Cairns (1999) states that:

> There was little reported research evidence that competency-based training was able to deliver the efficacy and results touted in the many papers, reports, and calls for this needed reform. The idea was timely, the approach was grasped with almost missionary zeal by some and the focus was seen as common sense. The lack of research evidence clearly justifying the approach or demonstrating clear links to the alleged competitive improvements for individual and even national business efforts was not an issue (p.2).

This viewpoint was supported by Newman (1999, pp. 75-76), who contended that: "in the interests of everyone the principles behind competency–based training should have been subjected to critical scrutiny". Although CBE/T was introduced in the VET sector at a national level and supported by the states and territories, its introduction has created a great deal of debate amongst all sections of educational professionals. The intrinsic changes stemming from its implementation were bound to create controversy. As argued by Smith, Lowrie, Hill, Bush and Lobegeier, (1996):

> Not only have many VET teachers and trainers been opposed to the concept of CBT but also the way in which CBT was introduced into some VET organizations was not ideal. Such a major curriculum change was bound to incur opposition. Many teachers and trainers arrayed themselves into the "for" and "against" camps and in such a climate it has not always been easy or appropriate to attempt to examine the effects of CBT (p. 1).

Harris et al. (1995) believe that CBE/T tends to polarize opinions, and that the contrasting viewpoints have often stemmed from the lack of a common definition, resulting in tangential discussion but limited commonality of purpose. They suggest that proponents of CBE/T often see its implementation as a 'cure-all' which will overcome many of the perceived problems in education, training and assessment. These people view competency-based learning as a means of improving the concurrence between education/training and the requirements of the workplace. Gonczi (1997) suggests that critics of CBE/T believe that its promoters assume that more education and training will result in better economic performance, and that serving the needs of industry best serves the individual and society.

Many opponents to the concept of CBE/T see it as reductionist, rigid, atomised, narrow, and pedagogically unsound (Chappell, 1996; Hyland 1994), whilst others view it as a 'controlling mechanism', restricting the professionalism of the educator, limiting a holistic approach to curricula, and stifling the expression of the student - presenting a narrow, fundamentally flawed conception of competence.

Chappell et al. (2000) consider that a narrowness of approach and definition manifests itself in a number ways due to an over-emphasis on technical task skills at the expense of general social, intellectual and emotional abilities. They suggest that competency should not be confused with performance, and that a large variety of attributes underpinning performance must be considered in a competency analysis.

The Australian Chamber of Commerce and Industry (1992) regards CBE/T to be a type of training that that places the primary emphasis on what a person can do as a result of training (outcome), rather than the process involved within training (input). This suggests a rather narrow employment-related role for competency-based education and training which involves a task-specific learning process, with little reference to life-skills that relate to both employment and social environments.

In the course of data collection for this study, one of the participants suggested that, in order to prevent the Myotherapy course from being too employment-related, the curriculum should be developed in conjunction with the competency standards of the relevant professional body. Many professions have produced 'competency standards' that can be used by curriculum developers as a guide to establishing syllabuses. It might be assumed that any professional body would expect a curriculum to be broad enough to include values relating to the community in general as well as discipline specific skills related to the workplace.

There has been a limited amount of research determining whether the introduction of CBE/T has brought with it an increase in competency skills. This may be due to the difficulty involved in determining whether the competency skills have improved or deteriorated, due to the non-grading approach to assessment that is commonly used. However, (Smith and Keating 2003) contend that there appears to be an increase in the use of graded assessment and that this is especially so in New South Wales.

3.4 Competency-based Curriculum

Just as definitions of 'competency' have been many and varied, there are differences of opinion as to what constitutes a 'Competency-based Learning Program'. Jubb and Robotham (1997, p. 171) express the view that "it still remains the case that a precise and widely accepted definition of competencies continues to elude both those researching the field and the trainers themselves".

Competency-based programs or curriculum can be described as being task-based and outcome-oriented, as distinct from input or content-oriented. They are based on industry or professional competency standards, with assessment based on a set of established criteria. The Mayer Committee (1992) established seven 'Key Competencies' they considered essential for effective participation in occupational settings including: collecting, analysing and organising ideas and information; expressing ideas and information; planning and organizing activities; working with others and in teams; using mathematical ideas and techniques; and solving problems and using technology.

The Mayer Committee felt these 'Key Competencies' should be generic to all courses and considered that this would enable knowledge and skills acquired in the learning program to be transferred to the workplace. The Committee also considered the inclusion of 'cultural understanding' as an additional competency, but stated in the report that "both the principles and characteristics the committee had used to construct the set of key competencies preclude the inclusion of values and attitudes".

The inclusion in the Committee's Report on 'Generic and Key Competencies' broadened the concept of employment-related competence, and commented that:

> Employment-related competence should refer not only to a narrow skills based vocational content but also requires generic and key competencies, which are required for effective entry into a wide range of occupations and industries (p. ix).

The depth and level at which the key competencies are taught and the means of delivery may vary, but they are considered an important aspect of the curriculum - without which the learning program would lose its integrity. However, this statement continues to equate the term competence with occupational and industry-related skills.

The mid-1990s saw a considerable effort being given to implementation of the Mayer 'Key Competencies' in Australian Schools and VET programs. More recently, Australian industry re-established a focus on key competencies - otherwise referred to as generic skills. The Australian Industry Group commissioned a report into the training needs of Australian industries (Allen Consulting Group, 1999), consulting a large number of companies in the manufacturing, construction, and information technology sectors. The research from this report found that an increasing premium was being placed on generic skills including information technology, problem solving, team skills, willingness and the ability to adapt.

With regards to what constitutes a competency-based program, Smith and Keating (2003) have suggested that the majority of curriculum developers and teachers or trainers within the VET sector would accept the notion that there are a number of 'key features' that can be categorized as being part of competency-based learning programs. Ten of these features include: 1) based on competency standards; 2) outcome not input focused; 3) involvement with industry; 4) recognition of prior learning; 5) modularized; 6) self-paced; 7) skills-based assessment rather than knowledge-based; 8) criterion-referenced assessment not norm-referenced; 9) flexibility in delivery; and 10) competencies that are widely recognized. A more detailed reference to these features can be found in Appendix C.

Smith and Keating (2003) have suggested that some learning programs may comprise differing combinations of these features, and not every competency-based learning program will include all of these 'key features'. However, they are of the opinion that for a learning program to be considered "competency-based", it would require the inclusion of a substantial proportion of these features.

This suggestion of a certain amount of flexibility in curriculum design is an important point to consider, as the research in this thesis was not based on the creation of a complete competency-based program, but conducted to consider if the inclusion of aspects of competency-based learning are beneficial in the task-oriented units within the Myotherapy degree course.

3.5 Curriculum in Higher Education

The HE curriculum has traditionally placed emphasis on content (information received) rather than outcome (ability to perform). Barrie (2005 p 1) suggests that since 'Graduate Attributes' were made a condition of government funding a few years ago, curricula in HE are expected to satisfy the following requirements. Firstly, they must prepare graduates with the discipline-specific skills to cope in a workplace environment. Secondly, they must produce graduates with the generic graduate attributes required by the institution. Thirdly, they must produce graduates who exhibit the generic capabilities required in the competency standards of the relevant, representative professional body.

Graduate Attributes have been described by Bowden, Hart, King, Trigwell and Watts (2000) as:

> The qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future (p. 3).

The term 'Graduate Attributes' has been used to describe generic capabilities of graduates from professional programs but tends to refer to attitudinal and dispositional qualities, that may be refined and modified by knowledge and reflection. The terminology is sometimes mixed and "generic attributes" have been defined as 'the key outcomes of higher education as a process' (Higher Education Council Australia 1992).

The discipline-specific skills referred to in the HE sector refer to the knowledge and skills required to complete tasks that are pertinent to a particular occupation or activity, and as such might be considered as similar to 'units of competency' within the VET sector. However, within the VET sector the learning program is entirely composed of units which are competency-based. The level of complexity and underpinning knowledge required to successfully apply these occupational skills in an appropriate and competent manner will vary according to the relevant task. For example, the knowledge and skills required of a solicitor in preparing a brief for a barrister or that required of a surgeon when performing a surgical procedure, may

differ widely from the knowledge and skills required to build a cabinet or make an article of clothing. Although the consequences of these actions may be very different, all of these skills require a certain amount of workplace or on-the-job training.

The early 1990s saw the emergence of generic skills as an important factor in the HE sector, and the Higher Education Council Report (1992) states:

> These are the skills, personal attributes and values which should be acquired by all graduates regardless of their discipline, or field of study. They should represent the central achievement of Higher Education as a process (p. 20).

Hager, Holland and Beckett (2002) suggest that when people use the term 'generic skills' they are referring to a mixed bag of skills components, attitudes, values and dispositions which differ from the discipline-specific knowledge and associated technical skills traditionally associated with HE. They also suggest that the term 'generic skills' has become increasingly used to describe the skills and qualities regarded as important in HE.

A major proponent in the development of generic skills has been organizations requiring their employees to possess proficiencies in a broad range of skills including communication, teamwork, problem-solving decision-making, and the ability to deal with atypical processes. The Australian Chamber of Commerce and the Industry and Business Council of Australia (2002) chose to define generic skills, capabilities and key competencies as 'employability skills', describing them as "Skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions".

The integration of generic skills and graduate attributes has been introduced, in principle, into many university courses. However, the Australian Universities Quality Agency (2003) considered the implementation as somewhat patchy. Barrie (2004) suggests that this may be the result of academics having differing conceptual understandings of the 'attributes'. If this is the case, one can understand and appreciate any frustrations taking place for those involved in curricula development.

Not everyone has accepted the integration of generic skills and graduate attributes. For example, Clanchy and Ballard (1995) suggest that it may not be appropriate to ascribe responsibility to universities for developing personal values in graduate

attributes - such as ethical behaviour or tolerance and integrity. They acknowledge that although such qualities are highly desirable, it is unreasonable to expect any university to certify that its engineering graduates are not racist or that its commerce graduates are ethical. They suggest that the best any university can ensure is that their graduates have mastered certain bodies of knowledge and that they have acquired certain generic intellectual skills that satisfy entry into a profession.

However most professional bodies have expectations that their members behave within a code of ethics and act according to prescribeds standard of integrity. Those professional bodies would also expect that the content and relevance of these attributes would be included in any relevant curriculum. These types of attributes might come under the area of procedural knowledge as mentioned by Biggs (2003) who considers that the knowledge and skills required by graduates can be divided into four distinct categories as follows:

Figure 3.1 Categories of Knowledge

Functioning	Knowledge within the experience of the learner combining both declarative and procedural knowledge in diagnosing a condition, planning treatment, or applying procedures. It requires a solid foundation of declarative knowledge but also involves: knowing how to do things (procedural knowledge) and knowing when to do these things, and why (conditional knowledge). • Assessment by supervised treatment of presenting conditions.
Conditional	This type of knowledge combines both procedural and higher level declarative knowledge so that one knows when, why and under what conditions one should do this as opposed to that. • Assessment might be based on clinical reasoning in case studies.
Procedural	This can be described as skills-based knowledge. It is functioning knowledge without the conceptual foundation. It is getting the sequences and actions right, knowing what to do when a given situation arises, i.e. having the right competencies. • Assessment is based on a set of pre-determined criteria.
Declarative	This can be described as public knowledge which is subject to rules of evidence which make it verifiable, replicable and logically consistent. It is what is found in textbooks and is what teachers 'declare' in lectures. • Assessment is based on getting students to declare the information back - using their own words and examples.

Adapted from: Biggs, J. (2003) 2nd ed. *Teaching for Quality Learning at University*: Open University Press. McGraw-Hill. Education. Berkshire, UK. (p. 41-43).

The type of knowledge base preferred when developing a curriculum should depend on the subject material and the level of complexity of the content. If we consider the four-year Myotherapy undergraduate degree program delivered at PHEP as an example of the above, in which we might expect the following:

The first year would emphasise the acquisition of lower-level declarative knowledge and basic procedural skills required in the areas of Anatomy and Physiology, Bioscience, Biophysics and Musculoskeletal Structure. Students would be introduced to study skills in the subject Biomedical Study Skills and subjects such as Soft Tissue Mobilisation and Myotherapy 1 & 2 introduce the student to basic procedural knowledge in preparation for studies in the following years.

In second year the emphasis on declarative knowledge continues at a higher level with subjects such as Myotherapy 3 & 4, Nutrition, Myofascial Dry-needling 1, Biomechanics and Kinesiology, Research Methods and Psychology I & 2. The more advanced procedural skills commence in this year and incorporated into the following subjects: Clinical assessment 1 & 2, Surface Anatomy, Dry-needling 2 and Trigger Point Location 1 & 2.

In third year, the emphasis would be directed to conditional knowledge with higher-level declarative knowledge would still be, very much part of the syllabus in subjects such as Pathology 1 & 2. Subjects such as Advanced Research Methods require the skills of critical analysis of scientific literature and are developed, building on the research methodology and statistics introduced in the previous year. In the subjects Pain Management 1 & 2 students are are expected to show evidence of more in-depth, sophisticated research and original thinking. Subjects requiring advanced procedural knowledge such as Skeletal Mobilisation, Corrective Exercise 1 & 2, Myotherapy 5 and Counselling 1 & 2 are dispersed throughout the year and incorporated into functional knowledge used in a clinical setting in year four.

In fourth year, students are expected to understand the concept of evidence-based medicine, its strengths and weaknesses and its relevance to Myotherapy. The assessment emphasis is on critical thinking and problem-solving, using essays and case studies in order to increase clinical skills. The ability to critically evaluate scientific literature is further developed and is tested by the research project

component, which is a literature review about an aspect of Myotherapy. Students are encouraged to critically analyse, review and extend their knowledge through assignments and external clinical experience where they are exposed to a diversity of attitudes, and methodologies of practice in Myotherapy and related professions.

3.6 Competency-based Approaches and Higher Education

CBE/T in Australia has largely been confined to the VET sector where it was introduced and vigorously implemented by a Federal Labor government which also suggested its consideration in the HE sector (Bowden and Masters, 1993). However, Harris et al. (1995) record that competency-based education was making little impression in secondary school courses (traditionally associated with entry into universities) or in universities, except in a few professional programs. Educationalists such as Hager (1992), Jackson (1993) and Watson (1993), have suggested that CBE/T is too compartmentalised to provide a holistic development of graduate attributes, with not enough emphasis being placed on underpinning knowledge and values. Penington (1992, p. 70) expresses the view that "education is broader than training and that the intellectual is not one and the same as the practical even though they may often be necessarily and desirably entwined".

The National Training Board's competency-based approach has naturally had its critics in all sectors of education. Some of this opposition has stemmed from an inherent reluctance by the HE sector to accept any system which has its beginning in the VET sector. It has also met with opposition from those who feel it is unreasonable to use the same approach when delivering basic learning programs in which emphasis is placed on manual or motor skills. Opponents assert that delivering a complex learning program with different professional outcomes and greater emphasis on the underlying educational and cognitive components requires a different approach.

Some educationalists claim there is a marked difference in the cognitive and diagnostic skills necessary for those occupations classified as professional compared to those required of occupations classified as trades, technicians, para-professionals or general manual workers (Gonczi, Hager and Oliver, 1990). A similar attitude has been expressed by Penington (1992), who considered that competency-based training

is suitable for learning processes in trades and other workplace training, but did not see it as an appropriate learning process for the liberal education provided by universities. Stevenson (1995) suggests that in the academic construct the term 'competence' is not commonly used and tends to be seen as negative - implying the capacity to perform routine tasks and confined to a limited aspect of humanness.

Others such as Kearns (1992) and Kearns, Lundberg, Papadopolus and Wagner (1993), suggest that the narrowness of the National Training Board's concept of competency-based standards developed within the VET sector in Australia has been a continuing cause for concern. This may explain the reluctance displayed by the HE sector to involve itself in a competency-based approach to learning. Hager (1993) contends that if 'competency' is viewed in a narrow mechanistic way, then clearly it has no place in Higher Education.

However, other educationalists take a more flexible and positive approach to the concept of competency-based education in the HE sector. For example, Ling (1999, p. 5) expresses the opinion that "With an appropriate definition, competency may be seen as a vital component of professional preparation in higher education". He adds the proviso that "where professional education includes a competency-oriented component, its assessment needs to take into account the full complexities of the content". Another suggestion by Hackett (2001, p. 6) contends that "competency required in professional practice requires the capacity to go beyond the competent performance of one's art, but also requires critical refection about one's art".

Suggestions have also been made on how to improve CBE/T, such as the inclusion of reflective practice as a generic skill. Tarrant (2000) argues that the VET competence model contains serious epistemological problems and requires the establishment and publication of a coherent theory of knowledge to overcome the incoherence in its existing division of performance and underpinning knowledge. However, he goes on to assert that concerns regarding CBE/T may not be the result of any inherent weakness in the competency model, but rather that it has been applied at a time of over-emphasis on a vocational education that largely ignores the other necessary and multifaceted aspects of individual existence and experience outside employment.

Competency-based programs have been introduced into the HE sectors of many other countries, and an example of the trend to integrate this form of learning program was expressed in a paper by Heusden (2004). She stated that:

> The Dutch National Council for higher vocational education has required that curriculum should change from the acquisition of 'factual' knowledge to focus on what is described as 'competency-oriented learning' in which the student is taught how to solve problems, to respond aptly to changeable professional situations, to interact with a team and to acquire new knowledge and skills continuously throughout life (p. 98).

Heusden describes this as a change in the conception of learning - from the acquisition of a fixed well-defined set of professional data to a more dynamic process in which students can actualize acquired knowledge through personal skills and experience. She describes the trend as a shift from knowing to capability.

The notion of 'capability' emerged in the 1990's and has gradually acquired credibility and gained acceptance. The term capability has been defined by Cairns (1997) as:

> the confident and mindful application of both current and potential ability (competence and capacity) and values within varied and changing situations to formulate problems and actively work towards solutions in a self managed learning process (p. 9).

Capability rather than competency and the notion of competency as a stage of professional development is further elucidated upon by Cairns in a discussion paper *Defining Capability for Education, Training and Industry* (1997*y*. In this paper he makes a detailed distinction between the words 'capability' and 'competency'. Cairns asserts, that competency can imply adequacy rather than excellence, and that CBE/T has led to the development of minimal standards, which divide students into a two-tier assessment system of 'competent or not yet competent'. No distinction is made in their level of competence. This criticism resonates with the perceptions of the research participants, one of whom said that the common practice of grading students as competent or not-yet competent does not encourage students toward a higher achievement. Cairns argues that the term 'capability' is preferable to 'competency' as it signifies a broader notion that extends beyond basic competence (knowledge and skills) and moves towards flexibility and adaptability to demonstrate potential and professionalism.

Another dimension relevant to any curriculum discussion is that of 'Competency Standards' which have been adopted by the relevant professional bodies and provide a means of validating learning programs. They can also be used by Curriculum Advisory Committees in both the VET and HE sectors as guidelines when creating, revising or updating learning programs and finally, they might help resolve the problems arising from articulation between the educational sectors. There is an increasing use of 'competency standards' by representative professional bodies to indicate entry-level standards to various professions. These 'standards' will have an impact on the curriculum delivered in the HE sector and consideration will have to be given as to whether the prescribed standards are being met within the curriculum and how these standards are to be delivered and assessed.

The peak bodies representing various professional groups, particularly those in Teaching and Allied Health, have introduced competency standards as part of their professional profiles. These standards specify the complexities that distinguish the generic skills and attributes of one occupation from another. The competency standards created by these professional bodies provide the basis from which curriculum can be developed, and in this sense they provide a role that is similar to competencies within the National Training Packages of the VET sector.

Competency standards do not determine the delivery strategies of a course, but do act merely as a guide by which the curriculum may be developed. They may also be used as a means of testing for strengths or weaknesses as part of curriculum maintenance and quality control. They cover every facet of an occupation and specify as clearly as possible what is considered to be the minimum knowledge base, including the skills and attitudes required for the entry level practice of the occupation. These specifications do not state how graduates should attain these standards and how they might be attained, or how their attainment might be assessed. Nevertheless, they are an important reference for any course advisory committee when considering developing a curriculum.

As the HE Myotherapy curriculum contains a large component of skills, this study should be of benefit to the professional body representing Myotherapists with degree qualifications, currently in the process of compiling Professional Competency Standards. These Competency Standards will play a large part in the development of

any future curriculum and are expected to refer to the graduate attributes expected for entry level into the profession. The positive attitude of participants in this study towards the concept of integrating competency-based learning and assessment strategies into Myotherapy education will no doubt be reflected in the compilation of competency standards. It is to be expected that these will reflect both community values and cognitive standards and skills expected in the delivery, assessment and underpinning knowledge of the discipline-specific elements of the Myotherapy degree curriculum.

If there is to be a nexus between the HE and VET sectors, it may evolve through the common intent shared in the use of 'Competency Standards'. These Competency Standards have been developed by representative industry bodies and are an integral part of National Training Packages in VET sector programs. An example of this approach for HE graduates implemented by MBDS University in their Teaching and Learning Strategy 1998-2000 listed seven desirable attributes as outcomes in the development of graduates. These include: knowledgeable; critical; creative; responsible; employable; committed to lifelong learning; and demonstrated leadership in their chosen profession. These attributes require the underpinning of generic capabilities, produced by the transfer of learning into practice.

3.7 Articulation and Cross-sectoral Linkages

In Australia, although CBE/T has had an enormous impact in the VET sector, it has had little impact in the HE sector. However, CBE/T has impacted on the HE sector in the area of articulation or cross-sectoral linkages. When students have VET level qualifications that are task-oriented and assessment-focused, they often find difficulty in seeking academic recognition of previous study or recognition for prior learning in a practical environment. Similarly, HE graduates may also find difficulty in having their study recognized in the VET sector.

One of the fundamental problems associated with implementing CBE/T into the HE sector is that CBE/T is often judged on the merits or otherwise of the model produced by the National Training Board and later by the Australian National Training Authority in the form of National Training Packages. The model followed in these Training Packages has tended to become a focus through which all

competency-based learning is judged and appraised. However, this model should not be regarded as the only means by which CBE/T can be implemented and delivered.

The introduction of National Training Packages allowed individual curriculum designers a great deal of flexibility in method of delivery, and included a shift in emphasis from content, training and assessment to assessment of prescribed tasks. However, Leahy and Gabb (1999) point out that one of the implications of National Training Packages impinging on the HE sector is the area of credit transfer and articulation agreements. The packages also suggest that automatic credit transfer arrangements based on qualifications be replaced by individual articulation arrangements with providers. However, this varying, individual approach to the method of delivery and amount of underpinning knowledge produces considerable difficulty when considering credit transfer or articulation.

An example of these articulation difficulties can be seen in the Advanced Diploma of Myotherapy program which originated as a VET program delivered at the MBDS. As previously mentioned, the curriculum for this diploma was developed prior to the introduction of National Training Packages. Each unit or subject within the program had a relationship with one or more of the competency standards required for Myotherapists. The subject outlines, structure and content of these units were similar to units in related courses in the HE sector. This provided for relatively straight forward comparisons of subject content when considering credit transfer or articulation with related courses in the HE sector. In fact, the Advanced Diploma of Myotherapy had a formal agreement with the Bachelor of Health Science (Human Movement) which allowed credit transfer in a number of subject areas.

The replacement course, the Advanced Diploma of Remedial Massage (Myotherapy), developed in a similar fashion to a National Training Package which comprised a number of units - all of which were competency-based. However, their content had little in common with subjects in the degree program. The units of competency acted merely as a guideline for the individual curriculum designers at institutions wishing to deliver all or part of the course. This allowed for a variety of delivery and assessment methods and created barriers to developing a uniform articulation policy and requires separate agreements between individual institutions.

In competency-based learning programs such as those in the VET sector, assessment is based on a set of criteria which is used as a reference to assess competency. This assessment process is based on output and performance rather than process and knowledge. This creates problems in articulation in both directions, as both the HE and VET sectors are required to consider granting credits for each other's learning programs when the assessment criteria do not match. This method of assessment has largely been accompanied by the introduction of a binary approach to grading in which the learner is considered either 'competent' or 'not-yet-competent', without grading the level of competency. Smith, Lowrie, Hill, Bush and Lobegeier (1997, p. 9) state that "the trend towards non-graded assessment in the VET sector accompanied the introduction of CBE/T in the VET sector and by 1996 over half the TAFE courses were using non-graded assessment".

With the introduction of CBE/T it was often wrongly assumed that that these programs had to include un-graded assessment. However, it should be noted that there is no clear national policy on whether grading should be used. Wolf (1993), and Williams and Bateman (2003, p. 8) have suggested that the criterion-referenced assessment used in competency-based learning programs does not necessarily imply a simple pass/fail system of grading. Smith et al. (1997) consider that a non-grading assessment may work well when the assessment is addressing a learner's competency in a predominantly manual task that requires little underpinning knowledge. This approach might be considered much less satisfactory when the assessment is addressing competency in a task that is predominantly cognitive or requires a much greater degree of underpinning knowledge. Concern has also been expressed that this approach will lead to commonality of 'adequacy' rather than encouragement to strive for excellence. Studies from Choy (1996) and Lundberg (1996) indicate that many students feel that lack of grading provides no reward for effort. Smith et al. (1997, p. 9) suggests that this may explain why the non-grading system appears to be reverting to a graded system in different states and institutions.

The implementation of National Training Packages have caused concerns regarding articulation between the VET and HE sectors. This is emphasised by Carnegie (2000), who suggests that some universities may not accept Training Packages for articulation purposes. Similar concerns are expressed by Watson (2006, p. 7), who

stated that "Although there is no nationally agreed position on graded assessment in VET some of the HE course conveners we interviewed said they require applicants with VET Diplomas to have graded assessments or to sit an entry test". In a Research Project Report for the Department of Human Services (Victoria) on the articulation between the VET and HE sectors, Spencer (2005) states that:

> ….. a primary difficulty was found to be that training packages in the VET sector specify graduate outcomes in terms of industry competency standards whereas HE specifies graduate outcomes in terms of learning outcomes and curriculum (p. 4).

If the concerns of articulation are to be resolved, then the problems arising from the methodology used in assessment and grading will require a reciprocal approach by both sectors. This may allow for the acceptance and introduction of a more integrated approach to competency-based education and training which facilitates an interface of understanding to develop, and at the same time ease, some of the problems associated with articulation between the educational sectors.

This thesis asks: *Is there a place for a competency-based approach to be formally integrated into the procedural or task-oriented units of a HE curriculum?*

This chapter has discussed a wide-ranging cross-section of national and international literature pertaining to the development, introduction and delivery of CBE/T in Australia. The views expressed in the literature provide us with an insight into the contentious nature of the development delivery of CBE/T in Australia. CBE/T was swiftly implemented in the vocational education sector but reticence as to its acceptance has been displayed in higher education. This raised the question as to whether there is a difference in the aims of educational outcomes in the vocational education and HE sectors. In considering the concept of CBE/T in Australia through the experiences of the participants in this research, it has been important to provide this review of relevant literature to provide a basis for the investigative interviews conducted with these participants.

The research methodology used in this thesis and the means by which data was collected, collated, coded and analysed, in order to identify relevant categories and themes is presented in Chapter Four which also includes a brief description of the participants is also provided as an indication of their backgrounds and familiarity with the research subject.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

Research is defined by Cohen and Manion (1994, p. 5) as "the combination of both experience and reasoning, which should be regarded as the most successful approach to the discovery of the truth". Elsewhere, Mouly (1978, p. 12) states that: "research is the process of arriving at dependable solutions, through the planned and systematic collection, analysis and interpretation of data". Researchers may choose from two main streams of methodology to study a particular phenomenon, 'Qualitative' and 'Quantitative'. Quantitative research involves the development of a hypothesis to formulate survey questionnaires, the results of which are quantitatively analysed to test the hypothesis. In contrast, qualitative research may start with nothing more than a research question, and a theory is developed as the data is collected using a range of methods. A research study may combine both but in most instances one of these approaches will predominate.

4.2 Research Methodology

At the commencement of the present study it had to be decided as to whether there was a hypothesis to confirm, or a question to be answered. The Collins Concise English Dictionary (1991, p. 555) describes a hypothesis as "a suggested explanation for a group of facts or phenomena, either accepted as a basis for further verification or as accepted as likely to be true". The phenomenon in this case was the recent introduction of a Myotherapy degree which contained a high degree of procedural or task-oriented units in the curriculum. There was no hypothesis relating to the structure of the curriculum which needed be established, however, there was a question to be answered, - is there is a place for a competency-based approach to be formally integrated into the procedural or task -oriented units of a HE curriculum?

It was decided that this question could best be answered by using a qualitative research process and exploring the views, experiences and perceptions of teachers and curriculum developers regarding competency-based learning programs? From the data gathered a theory could then be developed which could be grounded in the data recovered from the research

Qualitative research was selected as the most appropriate method to address the question posed in this study as it allowed for an in-depth, exploration of the attitudes and perceptions of the participants regarding competency-based education and training. It allowed the participants to express these attitudes and perceptions in a reflective written form and to elaborate on any views they had expressed at a subsequent interview. Strauss and Corbin (1990, p. 17) described qualitative research as "any kind of research that produces findings, not arrived at by means of statistical procedures or other means of quantification". It was later described by Creswell (1998) as follows:

> Qualitative research involves the studied use and collection of a variety of empirical materials – case study, personal experience, introspective, live story, interview, observational, historical, interactional and visual texts – to describe routine and problematic moments and meaning in individual's lives (p. 2)

Qualitative research has become increasingly popular in the last two decades and has been widely accepted across most disciplines including sociology, psychology, medicine, business and economics, and anthropology (Huberman and Miles 2002). It can be described as a process of evaluation, and is in a sense a process of examination and judgement of the documents viewed, the activities observed, and the answers obtained whilst interviewing participants. The process requires the researcher to become both a participant and a learner, during which they must carefully consider their questions, test their assumptions, be reflective, and recognise their own biases as they modify or introduce new questions (Rossman and Rallis, 2003).

This study has been developmental, and is analytical, arriving at conclusions based on the data obtained from answers to questions posed to participants in a descriptive survey and subsequent in-depth interviews. It sought answers to questions regarding the views, attitudes and perceptions of competency-based education and training from a small group of participants with experience in teaching, and/or designing competency-based education and training programs, as well as others who experienced its implementation in the HE sector. In this process, the experience and reasoning of participants was augmented using a 'grounded theory' approach.

4.2.1 Grounded Theory

Strauss (1987, p. 5) states that 'Grounded Theory'' was developed by Glaser and Strauss in the early 1960's during a field observational study of hospital staff's handling of dying patients. In this approach to research, a theory is inductively derived from the collected data and is said to be to be 'grounded in that data'. In the same text Strauss states that the theory produced by the research is grounded by:

> systematically and intensively analysing data, often sentence by sentence, or phrase by phrase of the field note, interview or other document; by 'constant comparison', data are extensively collected and coded. The focus on analysis is not merely on collecting or ordering a mass of data, but on *organising many ideas*, which have emerged from the analysis of the data (p. 22).

This approach of Glaser and Strauss appears to be the most suitable means of establishing a position on whether it would be beneficial to formally integrate some form of competency-based structure into the Myotherapy Degree program.

Next, in consideration of how to seek answers to the two research questions, Patton (1990, p. 70) suggests reviewing text data including excerpts and quotations from books, published papers, official publications and reports, memoranda and correspondence, and questionnaires and surveys. He also recommends that researchers take notes to provide detailed descriptions of activities, behaviours and actions from direct observations, and transcriptions of recordings of in-depth, open-ended interviews to provide direct quotations from people about their knowledge, feelings experiences and opinions.

In reviewing these options, the researcher decided that the most suitable way to obtain data relevant to answering the research questions was to interview relevant participants using in-depth, semi structured interviews. This would allow the researcher to provide participants with the opportunity to elaborate on any theme in which they held a strong view or conviction, and give examples of any particular phenomena they had experienced. It was also considered that a modified questionnaire in the form of a 'descriptive survey' would be a useful tool for providing foundation data and introducing the participants to the subject matter. The answers provided in the survey were reviewed by the researcher and clarified and expanded on, by the participants at the subsequent semi-structured, in depth interview interview.

In agreement with Kirk and Miller (1986), the research consists of the four basic stages as follows:

- An invention stage in which the research question is decided and a research design developed,
- A discovery stage in which data is collected,
- An interpretative stage in which analysis and theory building occurs, and
- An explanation stage in which the entire research process is packaged for communication.

This linear approach provides a pathway by which the researcher might be guided. However, it is important to realise that the use of in-depth interviews does not always conform to a neatly ordered linear approach, because in this type of research the analytic process is a constant throughout the process.

4.3 Data Collection

As very little information regarding the advantages and disadvantages of including competency-based approaches in HE was found to be available in literature, the researcher decided to ask people whose knowledge and experience in the area of competency-based programs would enable them to answer relevant questions. In this way the researcher was able to gain an understanding upon which to build up the knowledge base for this research.

Following this, the data was collected in three ways: a review of relevant literature (presented in the previous chapter); a descriptive survey; and in-depth interviews. The descriptive survey was posted to the participants for individual completion, and returned to the researcher. Next, individual, in-depth, semi-structured interviews were recorded, allowing the researcher to attain insights into participants' perspectives in relation to focus questions handed out prior to interview. This methodology added another dimension to the data by acting as a form of triangulation.

The qualitative method of interview used in this study is in accordance with Minichiello, Aroni, Timewell and Alexander (1995) who suggest that the data obtained provides information relevant to the study, and can be used to assist in the development of research questions. This can be followed by one or more interviews, in which the questions are refined in order to elicit more precise or explicit

information regarding the participants' views and perceptions on the subject under consideration. However, for the purposes of the present study, rather than burden the participants with two interviews, the researcher decided that it would be more efficient to use a 'descriptive survey' to be completed by the participant, followed by a single in-depth interview.

Participation in this study was voluntary. Each participant was approached by telephone, and if they agreed to participate a letter was posted which provided a plain language statement of the study outlining the reason for the 'descriptive survey' and subsequent interview. Also included was a consent form to be signed by the participant, background information on the study, the descriptive survey, and a stamped, self-addressed envelope for the return of the survey. Copies of this introductory information and consent forms can be found in appendix D.

When the surveys were returned, participants were contacted to arrange a suitable time for their interview, which was to be conducted at a venue selected by the interviewee (usually the workplace or home). The interviews were then audio-taped, and notes were taken by the researcher with the permission of the participant.

As previously stated these interviews were in-depth and semi-structured, in which, the questions from the descriptive survey were used as a guide to focus the interview and allow the participants to clarify any information or views they had expressed in the descriptive survey. At the same time the participants were encouraged to enlarge on any of the thoughts or perceptions they had expressed in the survey and/or provide further information which they considered to be relevant to the concepts under consideration. The data collected from the interviews together with the data gathered from the descriptive survey and literature review, was analysed for coding, discovering themes, and developing propositions.

4.3.1 Selection of Participants

The data was collected from ten participants who were chosen for their experience in the development and delivery of competency-based programs in Myotherapy and other health-related programs in the VET and HE sector. The participants were selected from those active in the field, and were identified and recommended because of either relevant expertise or professional experience in the area of the research. The

focus of the study was to gain insight into the personal views and perception expressed by the participants in relation to their experiences regarding CBE/T - they were not representing any organisation. All participants were of the same professional status as the researcher or higher, and had backgrounds in the VET or HE sectors or in curriculum consultancy.

4.3.2 Profile of Participants

There were 10 participants in the study, three curriculum developers, one from Higher Education, one from VET and one dual sector; two myotherapists who had taught in VET and moved to HE, two nursing professionals, both from HE and one paramedic who had moved from VET to HE. The participants are described below, each identified by a coded number to protect their identity.

Participant A1 is retired after 35 years of experience teaching within the VET sector in the area of maths and physics. He has taught in a wide variety of courses at various levels including year 12 studies, apprenticeship, Diploma, and Advanced Diplomas. His experience includes classroom teaching, assessment of migrant qualifications, and acting as curriculum development manager for a number of courses including the Advanced Diploma of Myotherapy. He has held a number of administrative positions including Head of Department in a VET sector of MBDS. He has also participated in the curriculum development of a Myotherapy degree at both the MBDS and the PHEP where he is presently lecturing in biophysics on a sessional basis within the Bachelor of Health Science (Myotherapy).

Participant B2 has been teaching for five years, with 10 years experience in administration prior to studying Myotherapy at MBDS and completing a degree in Health Science at Victoria University. She has been teaching and clinically supervising students for three years within a VET level course which has a Myotherapy component delivered as a National Training Package. She has lectured and clinically supervised at the bachelor degree level Myotherapy course at the PHEP. She has also participated in the compilation of study material and class notes for a number of subjects taught at both VET and HE levels.

Participant C3 has 25 years experience as a lecturer and senior lecturer in anatomy and physiology in the HE sector at various universities in Melbourne. He has

extensive experience in curriculum design in the areas of biomedical science, and his experience has primarily been with content-based curricula. He has also had involvement with a competency-based approach through involvement with the development and delivery of the Nursing and Chiropractic degrees at Philip Institute. More recently he has been involved with the accreditation of the Myotherapy degree at the PHEP, where he is currently Head of Sciences.

Participant D4 has been teaching for a number of years, and has acted as a demonstrator in anatomical "wet-labs" in both the VET and HE sectors. She has taught subjects such as surface anatomy, pathology and communication skills within the VET sector in a number of TAFE and private colleges. She has also been involved in the development of curriculum and subject matter for many of the courses she has been involved in, including competency-based programs in the VET and HE sectors of Myotherapy programs.

Participant E5 has a background in nursing and nurse education. She has held a variety of teaching positions in the VET sector for nine years, and in the HE sector for seven years. She has participated in curriculum development across a wide range of aged care and disability services in both the VET and HE sectors. She has also been involved in the development of professional registration boards, and has a wealth of experience to draw on at all levels of educational administration, teaching and the development of learning programs.

Participant F6 has extensive experience over a fifteen year period in teaching and curriculum development within both the VET and HE sectors. She has been involved in curriculum writing and the accreditation of courses in both educational sectors. This participant is employed in a full-time capacity for the development of curriculum, and is responsible for quality control issues at a large dual-sector university. This participant has been involved in the development of competency-based curricula in the VET sector, but not within HE.

Participant G7 has extensive experience, covering fifteen years of teaching and curriculum development within the VET sector in areas such as vocational development, education, information technology and business. For the last four years she has been an auditor in curriculum implementation in the VET sector. She has

also been involved in the review, implementation and professional development of teaching staff, and in the state auditing of National Training Packages. She has represented the Office of Training and Tertiary Education in the VET sector for four years, and acted as a consultant for competency-based programs in the HE sector.

Participant H8 has been teaching for five years in both the VET and in HE sectors. Her experience in curriculum writing has been limited to the discipline-specific area of her expertise. However, this participant has been involved in the development, establishment and review of professional accreditation standards and guidelines required for courses in both the VET and HE sectors. This entailed the establishment of National Standards for her profession, and the auditing of these standards in curriculum content and methods of assessment. Programs associated with the professional standards have been competency-based at the VET level, and content-based at the HE level.

Participant H9 has a background in paramedic and emergency management and has been involved with teaching in this area within both the VET sector for three years, and the HE sector for eleven years. The learning programs for this discipline in both sectors are competency-based. This participant has wide-ranging experience in teaching, and has participated in curriculum development in both VET and HE sectors in New South Wales and Victoria. She has also participated in the development of Professional Standards for the paramedic profession and in their quest for provisional State and National registration.

Participant J10 has been lecturing in the area of nursing in the HE sector for fifteen years. He has had major involvement in curriculum development, particularly in the area of clinical practicum units, and has ongoing involvement in curriculum review. His involvement with curriculum has included reviewing the articulation process between the VET and HE sectors of the nursing profession which has always used a competency-based approach to education and training in both educational sectors.

This brief introduction to the participants in the study provides an insight into the professional mix of those involved in both Myotherapy and related areas of curriculum development, bringing a diverse range of qualifications and experiences into the study.

4.3.3 The Descriptive Survey

A 'descriptive survey' consisting of nine focus questions (which can be found in appendix E) was sent to each participant. These questions are general in nature and provided the participants with a chance to focus their thoughts regarding their perceptions regarding the advantages and disadvantages of CBE/T. It also provided the participants the opportunity to answer questions at a time of their own choosing allowing them to provide considered answers to the questions.

In this way the descriptive survey helped to at least 'break the ice' in a cognitive way prior to the first interview, which proved helpful in those cases where the participant and the researcher had not met face-to-face prior to the interview. These focus questions provided not only a starting point for analysis and categorising of themes, but also instigated follow-up questions to be used in the interview.

Also included with the descriptive survey was a section in which the participants were asked to provide personal background information. The purpose of this section was to save time at the interview, and allow the focus to be on issues pertaining to the research. The participants were asked to provide a brief description of each of the following: experience in teaching or lecturing in the HE or VET sectors; experience in curriculum development; involvement with National Training Packages; involvement with professional standards in the HE or VET sectors; and involvement with CBE/T in the HE sector.

4.3.4 The Interviews

Maccoby and Maccoby (1954, p. 499) describe the research interview as "a face-to-face verbal interchange in which one person, the interviewer attempts to elicit information or expressions of opinion or belief from another person or persons" These interviews may be structured or standardised, focused or semi-structured or unstructured. The structured or standardised interview is an excellent method of gaining information from large numbers of people with similar backgrounds or characteristics. However, these interviews tend to have rigid time schedules in which the same questions are put in the same order to each participant, providing little opportunity for the interviewer to pursue other areas of interest that may be mentioned by the interviewee. In contrast, the unstructured interview tends to have

no formal interview schedule, and relies on the social interaction during the interview to obtain the information, requiring that that the interviewer control and direct the conversation to the researcher's interests. This means that the topic area guides the questions, but the mode of asking them is not structured and allows for an in-depth examination of the phenomenon or area of study (Minichiello. et. al. 1995).

In consideration of the small number of participants involved in this study, the researcher decided to use a semi-structured interview method to collect verbal information from participants. This allows the researcher to use a broad topic of study to guide the interview, and the interview schedule is developed around a list of topics without fixed questions. This method of interview allowed the participants to elaborate and expand on any subject they may have mentioned fleetingly in the descriptive survey, and also to comment on challenges associated in the introduction of a competency-based approach into a degree curriculum in Myotherapy. The questions (listed in Appendix E) focused on the participants' attitudes and perceptions to the notion of CBE/T and its relevance to HE curriculum.

4.4 Ethical Considerations

Ethical considerations were carefully observed during this study, and approval was obtained from the Victoria University Human Research Ethics Committee. The ten participants were selected because their work and professional experience were directly related to the context of the study. As previously stated, participants were contacted by telephone and given a verbal account of the nature of the research, and asked if they were interested in participating in the study. When verbal consent was obtained, they were then provided with a plain language statement describing the project, letters of consent, background information on the study, and descriptive survey to be completed. They were also advised that their names would not be used in the reporting of the study, and that the data they provided would be secured by the researcher in a locked cabinet. The participants were informed that they might withdraw from the project at any time, and if they wished to raise concerns with a higher authority than the researcher, they were directed to refer to the Ethics Officer of the Faculty of Arts, Education and Human Development. Potential risk to any of the participants was considered but not anticipated, and no evidence of this was encountered during the research procedures.

4.5 Validity and Reliability

The validity and reliability of qualitative data largely depends on the researcher's methodological skill, sensitivity and integrity. Minichiello et al. (1995) point out that a participant's perspectives on a subject are the individual's 'construction of reality'. Interviewing techniques require more than just asking a series of questions, as there is more to content analysis than just reading to see what's been said (Patton) 1990. Marton and Booth (1997) maintain that interviews do not produce uniformity of perception and understanding among participants, but produce sets or groups of answers from which the researcher can form categories to produce themes.

Minichiello et al. (1995, p. 177) state that: "there are three types of error which are said to make research invalid. A type one error is, believing a principle to be true when it is not. A type two error is rejecting a principle when it is true. A type three error is, asking the wrong question". The researcher is aware of the first two potential errors and has endeavoured to avoid falling into any rigidity of judgement, which may pre-empt these types of errors. With regards to the type-three error, Kirk and Miller (1986) suggest that the most common reason for validity errors in qualitative research is that the wrong question has been asked. That is to say that the question may not be fully understood by the participant, and therefore the answer may contain misinformation.

In order to reduce the possibility of asking the wrong question, data from participants was collected in two stages and analysed at the completion of each stage. In this case the first stage was a descriptive survey in which the participants were asked to express their views on focus questions regarding CBE/T, allowing participants to answer questions in private and at a time and place of their choosing. On completion, participants returned the descriptive survey to the researcher, which allowed analysis of participant's answers, and any ambiguities to be rectified at subsequent interviews. The interview allowed the researcher the opportunity to verify any answers provided by the participant and resolve any misconceptions which may have arisen. The in-depth interviews were arranged at times and places convenient to both the participants and the researcher.

This two-stage method of data collection helped in providing validity through cross-checking information. In this way the researcher is able to check whether or not the meanings of particular answers have been clearly interpreted, particularly when communication between the interviewer and interviewee have not been succinct. At the completion of each interview the researcher summarised the essence of the participant's responses to the interview questions to validate soundness of the data.

Reliability in this research has been accommodated by providing details of all procedures, and the reasoning behind decisions made in the process. It is also appreciated by the researcher that data analysis in this type of research is an ongoing, non-linear process which occurs in conjunction with the data collection. There are no clear cut distinctions between data collection and analysis. The researcher is also aware of the concerns associated with inconsistency in answers from participants, but appreciates that the same concerns apply to other modes of data collection such as questionnaires. For this reason, the questions to participants were, as far as possible, unambiguous and free from any bias by the researcher. Lastly, qualitative analyses of the data was carried out by coding and cross-checking the data at the completion of each stage, with a final analysis carried out at the completion of all data collection.

The primary outcomes of this research have been to provide an enhanced understanding of the viability of incorporating a competency-based approach into units of a HE sector program, and to understand whether this might be a positive contribution in the development of the skills and graduate attributes of that sector. It is anticipated that the implications of theories derived from this research will have a practical application in the Myotherapy curriculum, and will be a useful source of information to others contemplating similar developmental modifications to comparable learning programs in the HE sector.

This chapter presented the research methodology and research methods selected to investigate the question of a place for CBE/T in HE curricula. Grounded theory was drawn upon as a means of gaining insight in semi-structured face-to-face interviews with participants. This method provided participants with the opportunity to relate their experiences and perceptions to curriculum policy context in which they operate, reflecting as well on the intersection of the VET and HE sectors.

The next chapter, Chapter Five describes how the data collected from the descriptive surveys and in-depth interviews with participants was coded, classified, analysed and interpreted. In order to extrapolate and classify the participants attitudes and views towards CBE/T, three categories of participants were identified and classified into the following groups, 'positive, tentative and accepting'. From these groupings themes were identified and analysed. Chapter five also presents the results of this analysis and an interpretation of the information provided by the participants, addressing the primary question for the thesis as to whether there is a place for a competency-based approach to be formally integrated into the procedural or task oriented units of a HE curriculum.

CHAPTER F IVE

DATA ANALYSIS AND INTERPRETATION

5.1 Introduction

Qualitative data analysis is a process of continual reflection on the collected data in which the researcher asks themselves analytic questions, and records all relevant observations and understandings. Minichiello et al. (1995, p. 247) state that "the aim of data analysis is the process of systematically arranging and presenting information in order to search for ideas". In a grounded theory framework, data analysis should begin early in the collection process (Patton, 1990; Chamaz, 2003) as data coding is at the heart of grounded theory analysis (Babchuk, 1997). This has been defined by Strauss and Corbin (1998, p. 3) as "the analytic process through which data are fractured, conceptualised and integrated to form a theory". Minichiello, et al. (1995, p. 257) warn that "late coding weakens analysis and you should always try to code the previous set of field notes before starting the next interview".

Therefore, in agreement with these deliberations, this thesis has adopted a grounded theory approach in which understandings have been generated from systematically collected data, with coding categories being developed as soon as the field-work began. Paton (1990) suggests that the researcher starts with specific observations from the collected data and then detects the emergence of general patterns. As the researcher begins to understand and evaluate these emerging patterns, they will materialise as categories of themes. With the completion of the evaluation process, theories begin to emerge which are grounded in the data. Taylor and Bogdan (1984) considered that data analysis could be divided into three stages: a) coding the data, discovering themes and developing propositions; b) refining the themes and propositions; and c) reporting the findings.

In the collection, coding, analysis and interpretation of collected data, the researcher has been aware of the limitations imposed by misinterpretation of a question by the participant - or of an answer by the researcher. For example, there have been instances where answers provided in the descriptive survey have required clarification, and on three occasions later clarification was required to answers provided during interviews.

5.2 Coding and Classifying of Participant Data

As previously stated, the first method of data collection involving elicitation from participants was the use of a descriptive survey containing nine questions. The purpose of the survey was to provide the participants with the opportunity to present reflective answers which afforded the researcher with an understanding of the participant's attitudes and perceptions on the relevant topics prior to the interview. The data provided in this survey was clarified and expanded upon in the subsequent in-depth interview.

Recordings of semi-structured, in-depth interviews with participants took place following the return of their descriptive surveys. Although there were no structured questions for the interviews, the completed surveys presented the researcher with the opportunity to develop relevant questions which might be used in the subsequent interviews. As the descriptive surveys were completed and returned by participants, they were coded for categories prior to their follow-up interview. In this process, despite wide differences in participants' experiences of competency-based curriculums, their collective experience in both tertiary sectors yielded excellent insights into the attitudes and perceptions recorded in each basic category.

During this process, data was prepared for analysis by transcribing the interview recordings of participants' perceptions, beliefs and feelings about the area of study, prior to organising these findings into various classifications and repetitive themes, words, expressions and terms were sought and noted. In order to recognise the concepts each transcript was recorded with wide margins in order to make notes and recognise repetitive words or patterns.

In agreement with Paton (1990), the data collected in this study was collated into categories or units of general similarity. Data was then coded in a way that highlights recurring words, sentences and topics. This process allowed the researcher to delve into the data to discover and focus on emerging themes for comparison and contrast.

In order to streamline the coding process in this study, participants were divided into three basic groups. With the modest number of participants a colour-coding system was employed in categorizing the transcripts of the interviews into groups. These

groups were not rigidly defined but provided a means of identifying the participants' attitudes towards CBE/T. These groups were classified in the following manner:

The participants in group 1 whose attitudes towards CBE/T can be described as 'positive' viewed the introduction of competency-based learning programs as having been generally successful. These participants conceded that there may have been some difficulty in the early stages of it introduction and implementation into the VET sector, but these participants tended to see the advantages in this form of learning process as far outweighing the advantages.

The participants in group 2 whose attitudes towards CBE/T can be described as 'tentative' expressed concern that those negative experiences, which they had encountered in the implementation, delivery and assessment procedures within the VET sector was not transferred into the HE sector. These participants were not antagonistic towards the concept of CBE/T but their conceptions of its benefits tended to be tainted by their unfavourable experiences within the VET sector.

The participants in group 3 whose attitudes towards CBE/T can be described as 'accepting' also viewed the concept CBE/T favourably and were of the opinion that any associated problems they had experienced within the VET sector would probably be overcome as these programs evolved

In coding the replies to questions posed in the descriptive surveys and transcripts of the semi-structured interviews, information received from the participants was divided into the following categories: 1) Participant's attitudes to CBE/T; 2) Participant's notion of CBE/T; 3) Participant's experiences and perceptions of CBE/T; 4) Participant's perception of attitudes in the HE sector towards CBE/T; and 5) Participant's opinions on introducing CBE/T into units of a HE program.

Further coding of the information recorded in these categories lead to the development of the following three conceptual themes: 1) Concepts, 2) Perspectives and 3) Integration. These themes formed the basis on which the data was interpreted and theoretical propositions or grounded theories were established.

The analysis of these themes and their relationship to similar themes expressed in the literature review, contributed to the interpretation of collected data.

5.3 Research Findings

The initial data collected from the participants was the completion of a brief descriptive survey, which sought information on their roles and experience in relation to CBE/T. The participants were also asked to provide an outline of their professional experience in teaching or lecturing in the HE or VET sectors; experience in curriculum development; involvement with National Training Packages; involvement with professional standards in the HE or VET sectors; and involvement with CBE/T in the HE sector.

The personal background information provided a professional profile of each participant. With two exceptions, all participants had worked across both the VE and HE sectors. The professional sectors from which the participants were drawn, myotherapy, nursing, paramedic and curriculum design and development are all cross-sectoral. Myotherapy and Paramedic in particular are developing as fields of study in the HE sector, coming from a strong CBE/T base.

The 10 participants in the study (three curriculum developers, one from Higher Education, one from VET and one dual sector; two Myotherapists who had worked in VET and moved to HE, two nursing professionals, both from HE and one paramedic who had moved from VET to HE) are professionals with experience of working in the VET sector and then with the evolution of their fields of professional education and training have moved to the HE sector. Their perceptions of CBE/T are therefore enhanced by these cross sectorial professional experiences.

The survey provided an orientation to the study for the participants and an opportunity for them to focus their thoughts on CBE/T in both the VET and HE sectors. The responses provided a basis for the conducting of the interviews, building on the initial responses. The specific areas of professional practice of the participants was transcended by the commonality of their responses, which in turn formed the basis for a categorization of the participants into three groupings, positives, tentatives and acceptors.

The participants' responses are discussed below in the five categories identified in the analysis of the data. The responses are presented through the lens of the participants' attitudes and perceptions. As referred to in Chapter 1, the term

'attitude' is used to refer to a way of thinking, acting or feeling. The term 'perception' is used to refer to the process of using one's experiences to formulate views and opinions. The specific comments by the participants are italicized and parenthesized in the body of the text.

5.3.1 Attitudes to CBE/T

The attitudes of the first group of participants, referred to as the 'positives' towards CBE/T, was indeed very positive and included participants C3, J10, G7 and E5. Two of these had experience in competency-based programs in the HE sector. The first of these, C3, whose involvement in the development of the anatomy and physiology units for the first nursing degree in Victoria stated that *"it required a shift in concept from teaching these units as a content-based program to one in which the attainment of knowledge had to be accompanied with the application of that knowledge"*. The second participant, J10, was also from a nursing background with extensive experience in competency-based programs and he believed them to be *"well suited to the nursing profession where applied knowledge in the form of procedural tasks requires the underpinning of acquired and conditional knowledge leading to a high degree of functional knowledge"*.

The other two participants in this group had both been involved in the development and delivery of competency-based programs at the VET level. Participant G7 presented very positive views on the development and implementation of CBE/T. She does, however, acknowledge that the introduction of CBE/T into the VET sector involved a great deal of confusion, and feels that there has been a lack of professional development emphasizing the integrated nature of competencies. She was of the opinion that this had led to extensive delays in considering the integration of learning and assessment experiences. Her opinion of the National Training Packages was probably the most positive of the group and considered that *"they may have been flawed in accuracy and intent which once again caused confusion at their introduction but now they have evolved to provide specific and accepted conditions for assessment and have made clear the requirements for each AQF level within each industry package"*. This endorsement of National Training Packages was shared by participant E5 who contends that *"CBE/T is ideally suited to any type of health*

related programs but the National Training Packages have not been understood by many of their critics in the VET and HE sectors".

The second group the 'tentatives' included participants D4, B2, and I9, who all had experience in teaching competency-based programs in both the VET and HE sectors. However, the concerns they expressed were a reflection on the methods of implementation, development and delivery rather than the concept itself. Participant D4 described the notion of competency-based education as *"logical, especially in the acquiring of task-oriented skills"* (e.g. taking a pulse, blood pressure, carrying out an orthopedic test or muscle stretch). This participant did, however, express concern regarding the common practice of 'binary grading' in which the student is graded as simply 'competent' or 'not competent' and suggests that *"the student may be 'extremely competent' or 'barely competent', but there is no means of recording this disparity"*. This concern regarding binary assessment was also expressed by participant B2 who stated that *"little consideration has been given to students with exceptional ability and the prevalent system of binary assessment in which a student is labeled 'competent' or 'not competent' does little to encourage students towards a higher achievement"*.

The attitude of Participant I9 to CBE/T was favorable in that she felt that it *"focused on the delivery of procedural skills and the ability to reproduce those skills in an effective manner"*. However, she also felt that *"in the VET sector there is a lack of depth in the understanding or appreciation of why certain procedures may be carried out"*.

The third group the 'acceptors' included participants F6, H8, and A1, whose experiences in the development and delivery of competency-based programs were mixed. Their attitude was one of acceptance but with certain reservations. For example, Participant F6 contends that CBE/T describes how to do things and it is *"well suited to trade areas but not to areas such as language or academic work"*.

The perception that CBE/T is not useful in all subjects was supported by participant H8 who felt that *"the introduction of CBE/T in the VET sector had been accompanied with confusion and lack of integration"*. However, she was also of the opinion that *"the initial problems such as the binary approach to assessment which*

accompanied the introduction of CBE/T appear to be finding resolutions with a return to non-binary grading in some institutions". Finally, participant A1 who had extensive experience in teaching in the VET sector suggested that *"competency-based training in Australia is not completely new and stems from technical training in the military where a learner progresses from one stage of training to the next (in a lock-step manner) only after completing a required set of competencies".*

5.3.2 Defining CBE/T

As might be expected of this cohort of participants, their defining of CBE/T was in most cases similar and consistent with the definition stated in the Penguin Dictionary of Australian Education (1993, p. 79) which defines competency-based vocational education as "a program emphasizing the acquisition and performance of well-defined skills associated with a particular job, trade or profession".

In group one, the 'positives' Participant E5 described CBE/T as *"a combination of knowledge and formative skills performed to a required standard".* Participant C3 suggested that *"You can teach somebody to either acquire knowledge or in addition to acquiring the knowledge to apply the knowledge and CBE/T implies the latter".* Participant G7 considered that *"CBE/T focuses on the development of skills and knowledge to a level of performance to successfully and repeatedly undertake specific tasks and functions".* Participant J10 differed slightly from the other participants in that he saw competency as having a dual aspect.. In the first instance he describes it as *"a set of standards set by a professional community to judge members of that community against".* Secondly, he likened the word competency to *"being competent to perform certain psychomotor skills",* which he considered to be *"more applicable to apprenticeship training in the VET sector.* However, he did concede that these skills were also required by HE graduates whose generic skills included the performance of clinical procedures.

In the second group, the 'tentatives' Participant B2 described her concept of CBE/T as *"a program that spells out the 'steps' or skills that a graduate is expected to meet - and these skills should be repeatable when assessed".* Participant D4 described her concept of CBE/T as *"where a student emerges from a program as competent in a range of skills which are transferable to a workplace or clinical situation".*

Participant I9 was of the opinion that *"CBE/T focuses, primarily on the delivery of skills in order to reproduce that skill effectively"*.

In the third group, the 'acceptors' Participant A1 considered CBE/T to be *"a program designed to develop in the worker the skills and knowledge competencies required for entry into a specific industry"*. Participant H8 described a competency-based program as *"one in which students are assessed on the basis of their competency appropriate with the 'end-outcome' of what they are trained to do in the workplace"*. Participant F6 stated that *"CBE/T emphasizes skills and procedural knowledge - but these should operate in a conceptual context"*.

This commonality of approach to developing a definition of competency based education and training suggests that the participants consider the term CBE/T as relating to manual or motor skills rather than cognitive skills, and that they tend to equate these skills with the requirements of industry.

5.3.3 Experience of CBE/T

In group one, the 'positives' Participant C3 recalled his experience at the early design stages of university degree courses for nursing as opposed to hospital-based training as *"there had been initial conflict and opposition to a competency-based program, but the teaching was gradually streamed and adapted so that students were introduced to a competency-based focus early in the program. However, this was only accomplished by co-operation with a variety of participating teaching hospitals"*. Participant E5 stated her personal experience as a learner in the HE sector as *"the learning outcomes in many units did not give any sense of relating to the overall outcomes of the course of study in which I was engaged"*. She considered CBE/T to be *"practical, relevant, specific, and challenging",* and was of the opinion that *"having studied and taught under both CBE/T and knowledge-based curriculum - I found competency-based programs to be much more engaging for learners and teachers"*. This participant was also of the opinion that *"there was not enough thought given to education as a lifelong experience in which a learner may move between both educational sectors to gain skills as required"*. She suggested that an example of this may be when an employee with a HE degree in a particular discipline

later moves from being an employee to become a consultant, acting as 'sole-trader' and enrolling in a VET sector small business course.

Participant G7 stated that *"at the outset, the introduction of CBE/T to the VET sector led to a great deal of confusion"*. She was of the opinion that the benefits derived from CBE/T pedagogy have been dogged by difficulties including *"over assessment diminishing learning experiences to a 'lowest common' interpretation of the standards prescribed, and reduction in the amount of professional judgment allowed to the teaching profession through systemic quality requirements of evidence-based assessment"*. However, she considered that after ten years of CBE/T there has been a true change in teaching habits which has finally presented students with a more flexible, less rigid approach to assessment and learning. In her opinion competency-based programs including the National Training Packages have *"encouraged accountability in delivery, encouraged flexible learning practices, broken down barriers to learning for adults, and provided commonality across all states and territories, resulting in a uniform understanding and acceptance of the integrity of the qualification - irrespective of how it was obtained"*.

Participant J10 stated that in nursing all students in clinical placements (which start early in their course) are *"assessed against the Competency Standards developed by the Australian Nursing and Midwives Council (ANITC) for Registered Nurses"*. However, he considered that even with the ANITC providing competency elements to list and assess all of the complex tasks, few nurses have a clear idea of these standards, which are often viewed as 'theoretical' and difficult to use in assessment. This participant also commented that *"although I have had no experience in teaching at VET level, there was a strong feeling amongst many of my staff that the Division 2 Nurses (VET trained) tend to be rigid thinkers and are very task-oriented"*.

In the second group, the 'tentatives' Participant B2 suggested *"I actually think that there is some value in the way that competencies are written - and not necessarily with TAFE speak - but the clearly written competencies are quite useful"*. She also found that the way in which the 'units of competency' are written are open to interpretation and variation in different institutions. Participant D4 was of the view that *"the introduction of CBE/T was accompanied by a reduction in graduate*

standards". Participant I9 is not against the notion of CBE/T but is of the opinion that *"in my experience it was a very superficial way of learning"*.

In the third group, the 'acceptors' Participant A1 considered that in CBE/T programs *"the emphasis was placed on the training component and very little on the education component"*. He suggested that *"the VET sector has become the VT sector - vocational training sector"*. He is of the opinion that the National Training Packages are based on the modular system in which the worker progressed through training modules as their skills and requirements changed. He considered that *"these packages are concerned with what is required now and not what may be required in the future"*.

Participant F6 is of the opinion that *"CBE/T is suited to the trade areas but not suited to language development or academic work"*, and suggested that in Australia it is overwhelmingly associated with industry, vocation and the workplace, but not with abstract thought. Participant H8 also considered that *"the introduction of CBE/T was not well integrated and this created confusion which still exists"*.

The participants' experiences of CBE/T were understandably varied, but criticisms tended to be directed towards the inadequacy of preparation for its introduction and a lack of directional focus in its implementation.

5.3.4 Participants perceptions of attitudes in HE towards CBE/T
In the first group, the 'positives,' Participant C3 considered that "attitudes towards CBE/T in the HE sector might be influenced by individual learning experiences". He stated that in the teaching of anatomy, he had noticed *"those teachers who had acquired practical skills in "wet-labs" were much more inclined to use models or incorporate the use of instruments to explain or explore the subject material"*. He suggested that teacher's whose understandings of anatomy were less practically acquired, were more inclined to use overheads, diagrams or power-point presentations. Participant E5 was of the opinion that CBE/T is poorly understood in the HE sector, with a poor knowledge-base in the learning. She believed that in the HE sector *"there is an 'arrogance' of attitude towards competency-based programs based on a lack of understanding"*. Participant G7 stated that *"in the HE sector practicums that are commonly held at the end of a program of study are used to*

provide a competency-based, applied learning experience - whereas industry or professional standards provide a framework for skills development". Participant J10 stated that *"within the field of nursing, competency standards have been with us since the early 1990's and their relevance is accepted as a 'given' - when discussion does take place regarding CBE/T it is more about the practicalities of how we use these standards to assess our students".*

In the second group, the 'tentatives' Participant B2 suggested that *"there is a concern in HE that CBE/T may contribute to the loss of high standards in knowledge - in which HE has a strong focus",* and further comments that *"in general I think there will be an instinctive – no that's a TAFE thing and we don't want to embrace a TAFE thing".* Participant D4 added that *"she had not experienced any perceptions or attitudes concerning competency-based programs from her dealings with the HE sector".* Participant I9 stated that many of her staff who were involved in teaching across both the HE and VET sectors spoke of the frustrations they experienced when teaching in the VET sector, saying *"they enjoyed working with the students but found it frustrating to be working at a superficial level and coping with all the VET procedures".*

In group three, the 'acceptors' Participant A1 is of the opinion that the HE sector does not equate CBE/T with their role in education and stated that *"HE see themselves as providing a broad education required for entry into a spread of industries and professions, and at the same time provide graduates with the skills and knowledge to adapt readily to the changing needs of industry and commerce".* Participant F6 b stated that *"as CBE/T has manifested in Australia, it is seen as antithetical to academic discourse. It is seen as anti-intellectual, ignoring academic skills, communication skills, and more specifically, literacy and numeracy".* Participant H8 was of the opinion that *"there are negative attitudes to CBE/T within the HE sector and some of these attitudes stem from a perception in some areas of HE that there is a lack of grading in CBE/T assessment",* and suggested that this is not the case in all units of competency, especially those units delivered at Diploma level.

5.3.5 Opinions on introducing CBE/T into units of a HE Program

Among the 'positives', Participant C3 stated that *"I have formed the view that theoretical knowledge acquired by students through formal instruction, through student initiatives and through practical demonstration by instructors serves the relevant purpose of inculcating clinical reasoning and analytic skills for later clinical studies"*. He added a cautionary note by suggesting that *"in my view a predominantly competency-based approach in the enabling subjects would detract from the clinical and clinico-theoretical education developed in the student's clinical years when a competency-based approach was best suited"*.

Participant E5, also from the first group considered that *"a competency-based approach may not work for all disciplines but its introduction in some units in a course such as Myotherapy, would enhance the student's learning experience and employment opportunities"*. She also considered that a competency-based approach would make the graduates *"work-ready"*. Participant G7 from the same group considered that *"political and world trends are imposing an increasing pressure to produce work-ready graduates who can demonstrate a highly developed set of specific work skills underpinned by a sound knowledge- base"*. Participant J10 suggested that the impact of competency standards on a curriculum depends on the type of competency standards. He stated that *"if you refer to the psycho-motor skills competencies then it is likely to have little impact. However, if you have professionally-based competency standards and are applying these to your program then there may well be a big impact on the curriculum and outcomes for the students"*.

In the second group, the 'tentatives,' Participant B2 suggested that *"in the present Myotherapy degree curriculum, classes which are procedurally-based still contain a significant theoretical component"*. She considered that this would need to continue and its level of importance maintained. Participant D4 was of the opinion that this is *"a form this type of learning program is already taking in many areas such as nursing, physiotherapy, chiropractic, osteopathy, and paramedic - but the term competency-based it not commonly used to describe this type of skill- based training in HE"*.

Participant I9 from the second group had a positive attitude to the incorporation of a competency-based approach in areas of HE with a high degree of applied knowledge. However, she was also of the opinion that *"procedural skills, though important, should be seen as a small part of the overall degree"*. She was also of the opinion that the *"assessment of procedural skills should be performed on at least three separate occasions in order to ascertain whether the skill has been retained",* and commented that the degree course in which she was involved had introduced a new unit in the final semester - the content of which, comprised of a revision of all previously attained procedural skills.

In the third group, the 'acceptors' Participant A1 contended that *"education and training in the HE sector is in a way, competency-based in that the on-the-job component of the HE program usually takes place in the later stages of a learning program"*. Participant F6 contended that CBE/T in the form of National Training Packages contains positive aspects, but is of the opinion that *"their narrow adherence to competencies have created problems in the transfer of credits between the VET and HE sectors for work or studies completed in either sector"*. Participant H8 did not feel that CBE/T was suitable for all subjects, and was of the opinion that *"there is a perception in the HE sector that the VET curricula lack the notion of critical thought"*.

5.4 Analysis and Interpretation

In order to interpret and elicit meaning from the transcribed categorized data above, the data was coded to elicit conceptual themes and explicit relationships. This was done by displaying each category on a wall chart so that it could be scanned, checked, and analysed. Themes were developed from recurring words, phrases and expressions of similarity found in the perceptions provided by participants.

As indicated previously, all participants in this study were experienced in teaching at VET or HE sectors, and many had experience in curriculum development in each or both of these areas. Two of the participants had teaching experience only within the VET sector, with two others having teaching experience solely within the HE sector. The other six participants had teaching experience in both educational sectors. Although the participant group represents a mix of relatively diverse academic

backgrounds that add to the complexity of analysis, they have provided a rich cohort group with broad experience in developing and teaching programs that involve competency-based learning. The interpretation of data stemming from the categories presented above has identified three major themes. These themes also relate to issues presented in the earlier review of literature.

In the following section an interpretation of the data is provided under conceptual themes labeled *concepts, perspectives* and *integration.*

5.4.1 Concepts

Hoffmann (1999, pp. 275-286) argues that the term 'competency' is not a well-defined concept, and that this lack of definition hinders its application. However, all of the participants interviewed in this study had an excellent understanding and appreciation of the notions inherent in competency-based learning programs - with varying degrees of endorsement or approval. The insights exhibited by participants stemmed from their considerable experience and familiarity with competency-based programs at a developmental and/or delivery level.

For some participants such as participant C3, the introduction of CBE/T involved a conceptual change in thinking, both in the development and delivery of curriculum content. He was used to teaching a theoretical subject (anatomy and physiology) in the HE sector in a purely content-based manner that had little or no regard to the practical application of such information. However, with the advent of degree training for the nursing profession, a curriculum was required which reflected the profession's need to combine acquired and applied knowledge. He found that after adapting his thinking to accommodate these requirements he recognized the advantages in combining acquired and applied knowledge in an educational program where a large number of procedural tasks were underpinned by a considerable amount of declarative and conditional knowledge.

This formalized integration of both acquired and applied knowledge was also seen as advantageous by Participant J10 whose background in nursing has probably contributed to his conception of competency as a set of professional standards which incorporated the acquisition of psychomotor skills. Acquiring skills and knowledge for the workplace was also mentioned by Participant G7 who considered that the

primary focus of CBE/T is related to those tasks and functions demanded in the workplace, and suggested that this concept is underpinned by the tenets of performance benchmarks being accepted as commonly understood measures of human capacity - and that these performance benchmarks can be deconstructed as a series of skills and sets of knowledge.

The acquisition of a 'skill' may require either a great deal of underpinning knowledge or very little. This term has been defined by Attwell (1990) as 'the ability to do something'. He goes on to suggest that "While skill and competency are seen to be identical, the word 'skill' itself, connotes a dimension of increasing ability, which leads one to associate skill with expertise, mastery and excellence" (p. 433). Thus, the deconstruction of skills and knowledge suggests that a competency-based learning program need not be rigid in its application but implies that the essence of a competency-based program is the integration of knowledge and skills combined with a means of assessment that proves the learner's ability to combine both.

Participant F6 considered that the term competency describes 'skills rather than conceptualizations', and suggests that they have more relevance in the VET sector than the HE sector where a greater emphasis is placed on analytic inquiry and conceptual reasoning. Participant E5 had a very pragmatic view of CBE/T and suggested that competency-based training and educational processes invoke understandings of both educational training and learning.

The above comments have shown that the concept a person develops regarding CBE/T or any other system of instruction usually develops from their previous experience or association with its development or delivery. This being the case, it is natural that the participants held differing opinions on the usefulness or appropriateness of competency-based programs. However, none of the participants disliked the concept or notion of CBE/T. In fact, they all agreed that competency-based programs had merit in those areas where the attainment of high levels of procedural or applied knowledge is required.

Given the participants' similarity of background and experience, it was not unreasonable that they expressed similar views regarding the terms 'competency' and 'competency-based education and training'. It could reasonably be stated that

they consider that the term 'competency' as describing 'the ability to carry out a procedural task to a prescribed standard'. My summation of the participants' conceptions of a competency-based learning program can therefore be encapsulated as follows:

> A competency-based learning program is one which relates to the professional standards of a representative body, and emphasizes an applied knowledge that is significantly proportional to that of acquired knowledge.

5.4.2 Perspectives

Participants who had involvement with the establishment of CBE/T in the VET sector had reservations about the way in which it was introduced. They felt that there had been little or no consultation with the stakeholders prior to its implementation, resulting in confusion and lack of uniform understandings regarding subject material and assessment. This is consistent with literature in which Cairns (1999) and Newman (1999) found little evidence to suggest that the implementation of CBE/T had been preceded by much research or critical scrutiny regarding its principles and presumed benefits. From the data in this thesis, it appears that the confusion and uncertainty which accompanied the introduction of CBE/T concerning principles, content and assessment still exists. This lack of consultation and preparation with teaching staff prior to the implementation of competency-based programs was also acknowledged by those participants who were strongly supportive of competency-based approaches.

The lack of preparation and confusion which accompanied the introduction of competency-based programs has been repeated with introduction of the Health Training Packages. Participant G7 strongly supports the concept of CBE/T but considered the lack of professional development prior to introduction has led to delays in the integration of learning and assessment. However, this participant also felt that after ten years there has been a positive and 'true' change in teaching habits which have finally presented students with more flexibility in CBE/T programs. Participant E5, who also favours competency-based approaches, considered that the National Training Packages provided commonality of content with consistent outcomes, and flexibility for the learner to move between courses. However, she was also of the opinion that not enough time was provided in their implementation, resulting in the packages being poorly understood and with inconsistencies in

implementation. These perspectives regarding the implementation of CBE/T in Australia and in particular the National Training Packages, is supported by Wheelahan (2003) who has worked with many TAFE teachers over the years. She states that:

> The impression I get is that teachers find that they must use competencies as curriculum and develop 'check-list' type of approaches, to ensure they cover all the performance criteria. They feel de-skilled as teachers and are being sold short (p. 8).

Participant A1 retired from the VET sector just prior to the implementation of the National Training Packages and regarded their implementation as a process which *"reeked of an educational bureaucracy gone mad - where certification could be obtained for pouring a drink or tying one's shoe laces"*. He viewed the training packages as a self-sustaining educational industry that would bring joy to the heart of any civil servant.

Concerns were raised by a number of the participants concerning the level of quality or standards attained by students undertaking competency-based programs, and their application through the Health Training Packages. These concerns were expressed in terms of implementation, content and assessment modes. For instance Participant B2 described the CBE/T programs she was involved as containing vague and ambiguous language, with little focus on knowledge or standards - which may be linked to the excessive paper trails required to satisfy AQF standards. This type of concern had been foreseen by Bloch and Thomson (1994) who suggested that:

> All of those concerned with the future of competency-based education, training and assessment in this country need to work towards finding a balance between over-bureaucratising the assessment process and creating a system that is so 'loose' that it renders absurd the notion of national standards and portable competencies (p. 23).

Participant B2 was also of the opinion that the National Training Packages had created an environment in which the term 'competency' equates with the term 'minimum', resulting in little incentive for the student to do any more than the minimum to be deemed competent. Participant I9 considered that in the health-related area in which she was involved in the National Training Packages programs being delivered in the VET sector - focused too much on rote-learning methods that focused on the reproduction of skills, with too little emphasis on why these skills are

being used. She stated that "both she and her staff who were involved in teaching CBE/T programs at both VET and HE level in the same discipline-specific area, found teaching with the National Training Packages extremely frustrating because of their focus on procedural and applied knowledge at the expense of acquired knowledge. These concerns are consistent with the findings of Leahy and Gabb (1999) who state that:

> ..... a number of TAFE teachers are concerned that at the higher levels of the Australian Qualification Framework the unremitting focus on the assessment of competencies will emphasise the performance of specific skills at the expense of the broad underpinning knowledge that is seen as essential for high quality practice (p. 4).

This perception of lack of emphasis in acquired knowledge has been mentioned by a few participants who used the expression 'dumbing-down' when describing their perception of what had taken place in relation to standards in the implementation of National Training Packages. For instance, Participant D4 used the terms *'adequate, meeting minimum requirements'* and *'sufficient'* when describing her concept of competency. This participant's perception of the National Training Packages was that the standards of emerging students had been 'dumbed-down', and too much emphasis was being placed on the ability to carry out tasks with too little emphasis on producing the correct 'attitudes' - or what might be described as 'graduate attributes'. This term 'dumbing-down' was also used by Participants B2 and H8, whose perceptions of the National training Packages were that they provided better consistency but had also brought some 'dumbing-down' of content and assessment.

The term 'dumbing-down' is again mentioned by E5 in connection with HE attitudes towards CBE/T when she describes the HE attitude as regarding TAFE as lower status 'vocational education' - a poor cousin connected with the 'dumbing-down' of educational standards. She also used this term in connection with the Health Training Packages, complaining that the inconsistency of their implementation had created a perception that they had produced a 'dumbing down' of qualifications. The interesting point regarding the use of the term 'dumbing-down' is that it was not used by the interviewer prior to, or during the interview, but used independently by the participants when expressing their opinion on National Training Packages.

The generally negative attitudes expressed by participants towards the National Training Packages is shared by Wheelahan and Carter (2001) who argue that these packages may result in poorer student learning outcomes and threaten the effective transfer between the two tertiary sectors. They maintain that there has been great pressure for the TAFE and HE sectors to collaborate, but despite this:

> The policy directions in the VET sector, particularly the introduction of training packages continues to make the collaboration between the two sectors more difficult. Training Packages in their present form are less than helpful in facilitating the development of a 'seamless' tertiary education sector in Australia and do not add anything to ensuring that Australia develops a flexible workforce, equipped to face the challenges of technological change and the need for lifelong learning (p. 315).

Another area of concern raised by Participants B2, D4 and H8, was that the binary method of assessment did not provide enough incentive for students to try to excel in subjects or units of competency. The binary system of assessment probably stemmed from the attitude expressed by Participant G7, that competency has no grey areas - we are either capable or not capable of repeatedly and successfully performing tasks and functions at a prescribed level, irrespective of external or unexpected events. However, as early as the 1980's, levels of competence were being discussed by educational theorists such as the brothers Dreyfus and Dreyfus (1986, pp. 315-335) who distinguished between levels of competency and recorded five levels of them (novice, advanced beginner, competent, proficient and expert). These authors suggested that the difference between the novice and the expert lay in the varying ability of situational discrimination. They contend that the expert has learnt to distinguish situations that require one reaction from those requiring a different reaction.

5.4.3 Integration

Irrespective of their views on the implementation and delivery of CBE/T in the VET sector and their concerns in relation to the Health Training Packages, all of the participants felt that, if there was sufficient input into the development of subjects from the appropriate professional bodies, as well as practical support to students from those professional bodies - then the integration of a competency-based approach to subjects with a high proportion of procedural requirements (such as the Myotherapy degree program) would be beneficial.

All participants considered that the introduction of this type of integrated program would require considerable preparation in order to make certain that the procedural tasks being taught were delivered and assessed at a standard acceptable to the requirements of the entry-level standard of the associated professional body. The participants were also of the opinion that any such venture would require considerable thought and preparation to make sure that the subject material delivered could be assessed in a way which was clear, distinct and transparent to both the student and assessor. A competency-based approach has not been totally excluded from consideration in the HE sector, and some see it as something which, if modified, may have a beneficial influence in the HE curriculum. An example of this type of attitude is Barratt-Pugh (1995) who states that:

> Whilst a national competence based system designed for VET may be an incompatible instructional design for Higher Education it does provide a framework for change in higher education by providing rational underlying philosophies which could form the basis of a restructuring towards more outcome based development. Here the outcomes would specifically focus on cognitive development as well as content replication. The outcomes would not be limited to just skills and content (p. 17).

This viewpoint was reiterated by the participants, who considered that the integration of competency-oriented units into a HE learning program would bring a number of advantages to the curriculum.

Participant G7 stated that she firmly supports a competency-based approach to those course components where applied learning is a key issue, particularly in service professions such as health and social science. She considered the Myotherapy degree program as a perfect example that would benefit from the inclusion of some competency-oriented units into a content-based academic program. She suggested that a CBE/T program does not need to be bogged down in the tedium of a quality control system such as the AQTF which currently impacts dramatically on CBE/T implementation in the VET sector.

Participant C3 was also in favour of introducing a competency-oriented approach to the procedural units within a course such as Myotherapy. Indeed, he could see no other way, and felt that it would result not only in producing professionally competent practitioners, but also would enhance the reputation of Myotherapy in the health-care sector. This participant was also of the opinion that if the Myotherapy

degree introduced a competency-based approach gradually, from year one into the discipline specific subjects, it would not detract from the generic capability that is undertaken in the enabling subjects which provide theoretical foundations.

Many of the participants felt that a number of HE programs already had elements of CBE/T within their programs, and Participant E5 mentioned that medicine has used a competency-based curriculum for years, combining underpinning knowledge with skills requiring assessment, diagnosis and treatment. This participant pointed out that, although not formally recognized, competency-based programs already exist in many HE subjects, the only difference being in the terminologies used to describe them. This attitude was supported by Participant F6, who suggested that HE used used terms such as 'clinical placement' when describing CBE/T - due to the bad press competency-based training has had in Australia. Participant A1 also expressed the view that many courses in the HE sector have competency-based approaches included in their curriculum, simply coming under different names including internship, staff year, probationary year, articles, or procedural skills. Similarly, Participant G7 contended that the HE sector often employs a hands-on component in a curriculum, and refers to these components as a practicum or internship - but not parallel to CBE/T despite the similarities of intent and assessment of outcome. She feels that there are still difficulties in finding a margin of acceptance for CBE/T in the HE sector.

However, Boud & Solomon (2002) and Beckett & Hager (2002) contend that there has been a gradual acceptance of CBE/T in the HE sector and suggest that learning can take place just as effectively in the workplace as on the campus. Russell, Reynolds, Fairley, Hyde, McInerney and Gerzina (2005) support this opinion in the accreditation of a new competency-based curriculum for Bachelor of Dentistry at the University of Sydney. This course has been designed to develop and foster a range of skills, capacities and competencies that support an ethic of quality patient care in the following way:

> This movement to a competency-based curriculum model commenced with the recognition internationally, that clinical competence in health sciences could be perceived to be based on the proficient practice of a group of synchronized sub-units of skills (p. 1).

Russell et al. (2005) contend that their program is observing an international trend by including distinct, graduated elements within the domains of knowledge and fine motor skills development, which students first practice and are then expected to master pre-clinically in simulation.

The term 'rigid' has been used by many commentators when describing CBE/T curriculum, and an example of rigidity of thinking being developed in the VET sector was voiced by the two participants involved in teaching the same discipline across VET and HE. Participant I9 was not negative towards the 'notion' of competency-based programs, but considered that those delivered in the VET sector were producing graduates who lacked understanding and whose approach to learning was too rigid. This attitude was also voiced by Participant J10, whose positive attitude to CBE/T was slightly diminished by the concerns of both himself and his staff, who found that the VET training of Division 2 nurses tended to produce 'rigid thinkers' who were too task oriented. A research paper published by Bowers (2006) an educationalist with many years of teaching experience in the TAFE area, states that:

> the TAFE curriculum being generally very detailed with topics clearly stipulated that must be covered. It is prescriptive curriculum and often the assessments are mandated. The learning outcomes are structured and developed by industry advisory bodies with no input per se, from academics (p. 20).

Bowers goes on to suggest that the above problems give the perception of a rigid syllabus with little freedom for teachers, and whilst it is important that curricula retains links with the real world, it is important to maintain a flexibility that allows ideas to be expanded and explored in a scholarly way. Similarly, participant F6 expressed the view that the rigidity of the National Training Packages and their totally competency-oriented approach has created difficulties in credit transfer between the two sectors. However, she also considered that it would be of benefit if competencies were built into aspects of HE programs where procedural skills are required.

Concern over credit transfers was also referred to by participant I9, who suggested that the superficiality of content in the VET sector has contributed to the difficulties in articulation which are quite obvious in the paramedic field. She went on to clarify this by giving the example that students wishing to upgrade to the degree in

Paramedic after completing the Diploma in paramedic are entitled to credits for only two units in the degree course. This participant was also of the opinion that the VET sector produces students who are good at following protocols, but lack the clinical reasoning skills required in the HE sector. This view supports the suggestion that interface between the VET and HE sectors has not lent itself to a seamless transition between sectors and Wheelahan (2001) argues that:

> Collaboration between TAFE and higher education is constrained by the systematic impediments that derive from the existence of two sectors, impediments that have not been overcome by the existence of the Australian Qualifications Framework. Where they exist, collaborative arrangements are expensive to maintain and time consuming. They have not been supported by government policy or regulatory arrangements and they have not been financed (p. 6).

Concerns expressed regarding levels of academic rigour within the VET sector under the National Training Packages, has created an air of hesitancy to the introduction of a competency-oriented approach into HE programs. For instance, participant H8 suggested that this may have merit in task-oriented objectives, but is concerned that it might have a detrimental effect on the professional standards of graduates. She was also of the opinion that its introduction may adversely effect the development of the critical analytic thought that is an important factor in any HE program. Similarly, participant B2 stated that she views the introduction of a competency-based approach into a HE program such as Myotherapy with hesitation, and is concerned that the present high standards might become 'dumbed down' as in the VET sector. This participant is also of the opinion that professional associations and other stakeholders should have a strong influence on curriculum through their professional competency standards.

This belief in the need for a strong input from relevant professional bodies may stem from the feeling that many teachers in the VET sector have the sense that their role is being de-skilled. For instance, participant D4 takes the view that while introduction of a competency-based approach is important, especially for units which have predominantly task oriented procedures, there needs to be extensive dialogue between professional bodies representing the profession and the HE institution delivering the program. She is of the opinion that a competency-based approach can also contribute to graduate attributes such as professional attitudes, time

management, decision making, clinical reasoning, and an ongoing sense of professional development.

Competency levels in any HE program were an issue for two of the participants, A1 and J10. Participant A1 was of the opinion that there are advantages to introducing a competency-based approach into some units of what is a fundamentally content-based curriculum, but suggests it would require that there are well-defined competency standards and that the competency levels are well defined. While participant J10 was of the view that introducing a competency-based approach into units of a degree program such as Myotherapy would give the students a clear understanding of the graduate standard expected, he was also of the opinion that professionally based competency standards are more important than just procedural skills. He raised the question as to whether a profession without the ability to articulate a set of professional competency standards deserves to be called a profession.

In seeking to investigate the question as to whether there is a place for a competency-based approach to be formally integrated into the procedural or task oriented units of a HE curriculum, the predominant and consistent view to emerge has been the positive attitude of respondents to the notion of competency-based approaches in learning programs for both the VET and HE sectors of education. This attitude has persisted in spite of an almost universal perception that there had been little preparation for the introduction of CBE/T in the VET sector, causing considerable confusion in its implementation.

At the same time, nearly all the interviewees involved in CBE/T within the VET sector felt that the National Training Packages had resulted in a lowering of standards within the disciplines in which they were involved. In those areas of Higher Education such as 'paramedic' and 'nursing' where CBE/T are well established there was concern expressed by the relevant participants that students transferring from the VET to HE sector tended to acquire a rigid and protocolic thought process which was detrimental to the development of clinical reasoning required in graduates of the HE sector. In general however, all of the participants were favourably inclined to the introduction of a competency-based approach to

procedural units in a degree in a course such as Myotherapy. They were of the opinion that this measure would bring a number of advantages to the curriculum provided that, the development and implementation of any such step included input from the associated professional body representing Myotherapists.

The concluding chapter, Chapter six draws together the findings from the literature and document search, the descriptive survey and the interviews. These findings undergo further analysis, evaluation and synthesis. Chapter six also considers the implications of the study for the development of future curricula in the HE sector.

CHAPTER SIX

CONCLUSION

To be trained is to have arrived, to be educated is to continue to travel.
Calman (1997, p. 1)

6.1 Introduction

In this chapter the research findings of the study are discussed in relationship to the research question, which is: *Is there a place for a competency-based approach to be formally integrated into the procedural or task-oriented units of a HE curriculum.*
It can reasonably be claimed that, in light of the data collected and analysed that the answer to the above question is in the affirmative. In the following discussion, consideration is given to the concept of CBE/T and its implementation in Australia, and the attitudes and perceptions of participants in relation to formal integration of a competency-based approach in procedural-oriented units of a content-based Myotherapy curriculum within the HE sector.

The scope and nature of the field data was limited to a comparatively small group of individuals who have considerable experience in the development of health-related curriculum in both the VET and HE sectors. Thus, the attitudes and perceptions of a different group of participants may have produced a distinctly different set of conclusions. However, whilst acknowledging that the findings reflect a small cohort of individuals, it is suggested that their long and varied experience in teaching, lecturing and curriculum development, constitutes significant information that might reasonably be regarded as meaningful and noteworthy.

It is also acknowledged that the intention of this study has been to focus on the attitudes and perceptions of participants regarding the phenomenon of 'Competency-based Learning'. Therefore, the possibility remains that events the participants perceived to have taken place may not always be synonymous with what actually happened. This is an inherent feature of this type of investigation in which personal feelings toward a particular set of circumstances may unduly influence recollection. This issue has been taken into consideration during the analytic process, and where possible, supporting data in the form of quotes from published papers have been presented.

6.2 The Concept of CBE/T in Australia

The purpose of any educational program is to inform and prepare the learner for further education and/or the acquisition of skills and attributes which will allow them to function as a valued member of the community or society in which they work and live. As an educational program, although vocational training may vary in intent, it provides the learner with the knowledge and ability to carry out certain tasks to an agreed standard of proficiency. However, in the development of a vocational curriculum funded by the taxpayer, it is necessary to determine whether such a curriculum should put sole emphasis on satisfying workplace needs, or include attributes which render a person capable of contributing with flexibility in both the workplace and the general community.

In Australia, VET programs are generally comprised of formalized courses which tend to be predominantly skills-based. However, participants in this study expressed several concerns about predisposition to a workplace-oriented emphasis in CBE/T learning programs. For instance participant F6 suggested that in her opinion *"CBE/T has been hijacked by industry",* and felt that *"this had not been helpful for its implementation into the HE sector, as it appears to have less emphasis on underpinning and conceptual knowledge".*

This observation of CBE/T being too workplace-oriented is also supported by Harris, Guthrie, Hobart and Lundberg (1995) who suggested that a tendency in Australia to focus on occupational aspects more than 'life skills' may have contributed to some of the misgivings that have accompanied competency-based learning programs. This question regarding the conflation of student needs with employer needs was raised by Wheelahan (2003), who suggests that while the needs of employers and employees are interdependent, they are not the same.

In commenting on a 'discussion starter' (ANTA 2003: 6) in which it is suggested that: "Because vocational education and training is primarily about ensuring employability and employment security for individuals, industry leadership is critical." Wheelahan contends that:

> It is hard to argue with this statement: the problem is with the emphasis. Industry leadership is important but so too is leadership from other stakeholders if VET is to play a broad role in supporting communities and

individuals. A distinction needs to be made between industry *led* and industry *driven*. The interests of employers and students are not identical. While employer organizations talk about the broad attributes employees need, most employers' investment in training is, as the *discussion starter* states, 'just for my business' and 'just what it needs now'. This is different from the broad capacities and skills and particularly lifelong learning skills (p. 3).

In the evaluation or appraisal of CBE/T, there appears to be a fundamental question to consider. We have to ask whether its conceptual development was to satisfy the needs of industry or the needs of the community - which are not necessarily the same. In general, industry requires competent employees who can fulfill all the requirements and responsibilities of a particular occupation in a proficient manner. This is not an unreasonable requirement and industry in general cannot be expected to take responsibility for the needs of the community. However, any learning system which receives accreditation from government bodies, and large amounts of public finance in both its development and delivery must be geared to providing graduates whose education and training provides them with skills that prepare them for their role in both community and workplace.

It would appear to be the case that in Australia, CBE/T as implemented in the VET sector has been dominated by a narrow, workplace-oriented approach, with a bias towards assessment rather than process. The concerns of participants regarding this workplace focus would need to be taken into account when considering any changes to the Myotherapy degree program or any other HE sector program that wishes to incorporate a substantial number of competency-oriented units. Thus, it would be necessary to establish that any such curriculum be designed to provide the learner with knowledge and skills that constitute an education - rather than just skills training in a particular field. It would also require that any such curriculum incorporate both community-oriented and vocationally-oriented graduate attributes.

6.3 Attitudes and Perceptions of CBE/T

Participants in this study were generally of the opinion that CBE/T had a good deal of merit, but even those who had very favourable opinions regarding its value and effectiveness were also aware of the difficulties arising in the VET sector resulting from lack of preparation in its implementation. This type of attitude is reflected in the data collected for this thesis during the interviews with the participants who were

generally positive in their attitudes to the notion of CBE/T. These participants considered the use of competency-based programs to be extremely useful if confined to those areas of HE programs which are primarily task-oriented. However, they considered CBE/T too limiting to be used in all aspects of a HE curriculum and expressed concern that the implementation difficulties they had observed in the VET sector would transfer into the HE sector. For instance, participant E5 was of the opinion that in the HE sector, CBE/T was *"poorly understood, with a belief that there is little knowledge-base to the learning"*. She felt that there was an 'arrogance' of attitude in that sector towards competency-based programs which was based on a lack of understanding. This perception may have validity in light of an observation by Ling (1999), who stated that:

> Competency has been assessed narrowly in the VET sector and in reference to a limited concept of standards. The notion of competency can be viewed as complex and assessment of competency has the potential to explore multiple tasks, problem solving and application to new contexts – elements which may be seen as more pertinent to higher education than simple task performance (p. 5).

Furthermore, participant G7 who was very positively disposed to the concept of CBE/T expressed the view that *"the benefits derived from CBE/T have been dogged by difficulties such as over assessment and the reduction in the professional judgment allowed to the teaching profession through the systemic quality requirements of evidence-based assessment"*. However, this participant was also of the opinion that this was changing and suggested that *"teaching habits were changing to finally present students with a more flexible, less rigid approach to assessment and learning"*. These comments exemplify participants' opinions that programs within the HE sector requiring the attainment of procedural skills, would benefit from a competency-oriented approach to learning and assessment.

The introduction of National Training Packages into the VET sector did little to dispel the concerns of participants in relation to CBE/T programs. Generally speaking, the impression created by these packages was that they produced a great deal of paperwork, confusion, disparity of delivery, and rigidity in assessment. The strong emphasis placed on assessment within the Training Packages led Leahy and Gabb (1999, p. 4) to argue that "the term Training Package is misleading and it should be called an Assessment Package".

Misgivings surrounding effectiveness of the National Training Packages have also been expressed by Wheelahan (2003), who questioned their effectiveness in developing skills. She suggests that:

> Training Packages are based on fiction in that they were designed for and assume workplace delivery when, in fact, the main method of content delivery in the vast majority of VET programs is by classroom instruction, lectures, seminars, workshops or conferences (p. 2).

The Australian Council for Private Education and Training (2000) has also expressed concerns that the National Training Packages are not appropriate for the Australian Qualifications Framework (AQF) level V1. These concerns are understandable when we consider that many of the Training Packages at Certificate 1V and above contain competencies related to supervisory skills, which are not appropriate for entry-level qualifications.

However, participant G7 felt positive about the National Training Packages, saying that they have *"encouraged accountability in delivery, encouraged flexible learning practices, broken down barriers to learning for adults and provided commonality across all states and territories, providing a uniform understanding and acceptance of the integrity of the qualification, irrespective of how they were obtained, has allowed a variance of curriculum"*.

All participants expressed concerns that care should be required in framing any integrated Myotherapy curriculum to ensure that standards of underpinning knowledge are maintained, and assessment of discipline specific tasks are of a standard suited to entry levels of relevant professions. Although participants were positive about the concept of CBE/T, nearly all felt that it may have received a much more positive response had the development and planning of its implementation received adequate preparation and consultation with teaching staff. Unfortunately, competency-based programs have become synonymous with the National Training Packages which provoked a largely negative response from participants.

In general, participants with experience of CBE/T in the HE sector were accepting of this type of learning program and the manner in which it has been delivered. However, most participants expressed concerns that the introduction of National Training Packages into the VET sector appeared to have produced graduates with a

'rigidity of thinking' creates difficulties when transferring from VET to HE courses. A few had used the term 'dumbing-down' to describe perceptions of what had happened to standards following the implementation of National Training Packages into the VET sector.

One of the notions apparent during the course of this research was the difference in aims and aspirations according to the type of knowledge the tertiary sector was trying to impart. Within the VET system there is a strong emphasis on the ability of the student to carry out procedural tasks. There may be a requirement to carry these tasks out in a variety of environments or situations, but emphasis is on the ability to follow certain protocols in relationship to such tasks.

This attitude was also emphasized by participant I9 who considered that *"the VET sector training for paramedics is just not extensive enough - it is predominantly rote-learning focused on the reproduction of tasks or skills"*. She went on to relate that *"it was my experience that when I completed and qualified in an 'event life support' course in which I rote-learned all the protocols of pharmacology and procedural skills, when I walked out the door I felt, I don't know what I am doing because I don't understand it"*.

The aim within the VET sector in health-related programs appears to be to produce a graduate who can combine declarative, procedural and conditional knowledge to generate 'protocolic' knowledge in which specific procedures are followed. However, in the HE sector the aim in health-related programs appears to be to produce a graduate who can combine declarative, procedural and conditional knowledge to generate a 'functional' knowledge based on clinical reasoning that has been generated by analytic inquiry.

6.4 Integrating CBE/T into Procedural Aspects of Higher Education

A Higher Education learning program must produce graduates who have acquired the graduate attributes and generic skills required to competently, complete tasks which are relevant to their profession. The acquisition of the knowledge and skills required in performing particular tasks may involve differing amounts of underpinning and procedural knowledge and diverse methods of delivery and assessment.

For a graduate to achieve the required knowledge and skills it would seem logical to utilize more than one method of delivery and assessment such as CBE/T which takes place in the VET sector with National Training Packages. A similar criticism would apply to a HE program which had a purely content driven curriculum. Therefore it would seem reasonable to suggest that a combining or integration of both methodologies may well prove beneficial.

None of the participants interviewed had any fundamental objections to such an integrated system, and nearly all were of the view that its implementation in the Myotherapy degree would be beneficial. Without exception, participants were of the opinion that nearly all HE sector courses that are vocational in nature already have some form of competency oriented structure in the areas where procedural tasks are taught and assessed. However, they felt these are not usually seen within the HE sector in a way that equates with CBE/T.

Traditional content-based approaches to curricula deem that a person who has satisfactorily completed the allotted subjects in a given course of study is considered to have achieved the required amount of knowledge and skills pertaining to that course. Although the majority of traditional learning programs have a specific vocational outcome, this is not always the case. By comparison, CBE/T programs focus on attaining specific skills that directly relate to employment rather than on the process of acquisition.

When considering differences between curriculum in the VET and HE sectors, Boud (2003) argues that the term 'curriculum' is not widely used in universities. He considers that there needs to be a greater input into the content and various aspects of learning programs, and argues that:

> There needs to be a focus on an educational approach to the curriculum, not a narrow operational competency-based approach suitable for pre-defined learning outcomes. Competency-based frameworks that delineate the universe of outcomes – such as those used in vocational education and training derived from industry-based occupational standards – are unlikely to be appropriate except for relatively low-level work-based programs (p. 46).

In the present study, the differences in competency-based curricula was expressed by participant G7 who suggested that *"the very practical and industry-driven nature of CBE/T was what set the VET sector apart from the greater degree of academic*

rigour, innovation and professionalism deriving from a university education". However, there are examples in the HE sector of learning programs such as nursing and paramedics that contain a substantial component of competency-based learning. Participant C3 pointed out that *"HE graduates are expected to have a comprehensive knowledge of their chosen field of study - and through reasoning and experience, continue to increase that knowledge within their field of study"*.

To overcome concerns regarding standards in academic and professional competency, an integrated approach to curriculum has been proposed by Hager, Gonczi and Athanasou (1994) in which the atomistic approach of individulising the elements to be assessed is combined with broader generic or graduate attributes. This concept of competency respects the importance of professional practice by including the cognitive, ethical and effective aspects of performance, further, this sense of competency allows for varying viewpoints of content regarding competency in practice. According to Gonczi (1997) and Hager (1995), the integrated approach sees competency as a complex combination of knowledge, attitudes, skills and values displayed in the context of realistic task performance.

An integrated learning program requires the outcome or objective-based design which is becoming more popular in medical education (Prideaux 2003). This program is based on the desired outcomes to be obtained by graduates, requiring curriculum designers to 'work backwards' by firstly establishing desired outcomes of the entire program as well as objectives within individual units of the syllabus. Chappell et al. (2000) consider CBE/T to have evolved towards a more integrated form that links the skills, knowledge, attitudes and attributes required of the learner. They suggest that many educators have been reluctant to embrace the concept of competence, and this might, in part, be attributed to the early history of the competency-based training movement in vocational education.

If we are to consider the concept of an integrated approach to curricula in the HE sector, consideration must be given to the differing categories of knowledge such as those suggested by Biggs (2003, PP. 41-43). These categories of knowledge will require appropriate methods of assessing the standard of proficiency in any particular unit or subject within a learning program. The type of knowledge base preferred when developing a curriculum should depend on the subject material and level of

complexity of content. It would be reasonable to assume that in any HE curriculum that has task-oriented components, the aim would be to produce graduates with a high degree of proficiency and functional knowledge. The majority of participants were of the opinion that the development of an integrated program would require both academic and professional input and should be guided by the related professional competencies.

Concerns expressed by the participants regarding CBE/T tended to arise from their experiences and perceptions of programs delivered via National Training Packages in the VET sector. Most participants had a negative attitude to the National Training Packages which they described as too workplace oriented, assessment based, lacking in explicit underpinning knowledge, and producing narrow 'protocolic' thinking.

VET sector programs are predominantly National Training Packages that consist of a prescribed number of 'Units of Competency' and generate courses in which the total curriculum is competency-based. These courses are designed to produce graduates who have been assessed as 'competent'. However, an integrated system in the HE sector which included both content and competency-based study, would require that the graduate's abilities were judged differently, and have a goal of producing a capable graduate. If we wish to formally integrate CBE/T into the higher education sector, a process, which is already starting to take place, we also need to consider the graduate attributes required, the knowledge to be addressed, the methods of assessment assessed and the academic rigor required.

Another area of concern regarding CBE/T which has been mentioned in the HE sector as to the possible negative impact of giving too much weight to the procedural aspects within a curriculum at the expense of the intellectual context as voiced by the Australian Vice Chancellors' Committee in the early 1990s.

> Unless very sensitively handled, the specification of sets of competencies required from university graduates can threaten the integrity of university-level education. Such specification distorts courses and curricula by giving undue weight and significance to attributes removed from the necessary, if less measurable, intellectual context in which they must be embedded. (AVCC, NOOSR, 1992, 2 cited in Bowden and Masters, 1993, 60)

However there are health-related degree courses requiring a high degree of competence in procedural tasks such as nursing or paramedic qualifications which

also require a large amount of underpinning knowledge, suggesting that this type of integrated and participatory program can prove to be very effective. This study has indicated that a similar integrated approach to the Myotherapy degree program with input from both academic and professional representatives should prove equally as effective as the nursing or paramedic degree programs and that this approach may be useful in the future curriculum development of comparable programs.

Whether a competency-based approach becomes more acceptable within the HE sector remains to be seen, but it would appear that in the future some form of integrated approach to curriculum will be required and consideration given to whether the term 'competent' or 'capable, best describes a graduate's attributes.

6.5 Further Research

The conclusion in relation to the perceptions of CBE/T explored in this thesis leads to a consideration of the need for further research. The thesis has explored CBE/T through practitioners' eyes as to the worth of integrating aspects of CBE/T from the VET sector into the HE sector. This case study of perceptions of CBE/T drew upon Myotherapy, an area of study that has moved from the VET sector to the HE sector and from a Diploma qualification to a degree program. This new degree has served as an exemplar of integration of the two approaches to curriculum

As discussed earlier, Competency-based Education and Training is difficult to define and has come to have different meanings in different countries and educational sectors. It has been argued by Goldhammer and Weitzel (1981) that:

> Arriving at a theoretical or operational definition of competency-based education is difficult, if not impossible, because of the nature of the movement itself. To a great extent, the definitional confusion can be traced to the variety of concepts that have been incorporated into the expanding movement during the past decade. Performance-based learning, mastery learning, proficiency, accountability, efficiency, equality of outcome, basics, generic skills, criterion-referenced testing and minimal competency testing have all been subsumed under the guise of competency-based education (p. 45).

More than a quarter of a century after Goldhammer and Weitzel made their comments, there still appears to be confusion and differing opinions surrounding the definition and implementation of CBE/T and doubts regarding its likely effectiveness

or appropriateness in the HE sector. Attempts have been made to change the definition of 'competency', such as the one suggested by Ling (1999) who considered that:

> With an appropriate definition, competency may be seen as a vital component of the professional preparation aspect of higher education, but where professional education includes a competency-oriented component, its assessment needs to take into account the full complexities of the concept (p. 5).

The key word here is 'component' which must be seen as part of the professional preparation expected of the graduate, but which does not imply that 'competency' should be regarded as the benchmark by which the graduate's overall performance is judged. The implication that competency might be seen as a constituent part of a learning program has led a number of educationalists to consider an integrated approach to curriculum development. This approach does not reject the notion of competency, but incorporates it into a curriculum that gives equal weight to process and graduate attributes which are not necessarily workplace oriented.

Rather than re-defining the term 'competency' to describe this integrated approach, the term 'capable' has come into vogue as a means of describing a condition or capacity beyond mere competence. For instance, Lines and Muir (2004, p. 1) argue that a capability approach to tertiary education has become dominant within the HE sector in recent years, and suggest that "The push for a focus on what graduates should be capable of when they leave universities has been driven by a combination of government, employer, academic and student interests".

Walsh (1999, p. 2), in a paper on educating professionals within the dental profession, suggests that the 'common usage' definition of competency relates to a practical skill. He points out that this over simplicity of definition can have a detrimental bearing on self-directed and self-motivated learning, as levels of competency are based on the expected behavior required of the individual at a certain stage of their professional development. This view presents competency-based learning as an evolving process based on both performance of contextual skills and cognitive development at various stages of experience, occurring throughout the practitioner's professional life.

This expectation of continuing professional development is also regarded as a component in the notion of 'capability' in curriculum development which is being advanced in the area of health education. Fraser and Greenhalgh (2001) argue that traditional education and training largely focuses on competence, and in today's world we must move beyond this perspective and focus on capability centering on process and avoiding of goals with rigid and prescriptive content. They are of the opinion that the education of health-care professionals, which would include Myotherapists, must focus on not only competence but on capability, in addressing the changing needs of patients requiring such health care. They differentiate competence and capability as follows:

> Competence is what individuals know, or are able to do in terms of knowledge skills and attitude whilst capability is the extent to which individuals can adapt to change, generate new knowledge, and continue to improve performance (p. 799).

Therefore, when considering further research into competency-based approaches and curriculum development in the HE sector, this thesis concludes that rather than aiming to produce a graduate who is judged to be 'competent', it may be preferable to produce a graduate who is 'capable'.

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APPENDICES

APPENDIX A

BACKGROUND TO MYOTHERAPY

Introduction

Myotherapy is the most recent form of physical therapy which in one form or another has been used as a therapeutic agent in both Eastern and Western societies for thousands of years with the early Egyptians and Persians using this type of therapy and an Arabian physician (Avicenna 980-1037) gave detailed descriptions of the uses and effects of massage in a book titled, *Canon of Medicine.*

The Greek poet Homer who wrote the 'Odyssey' spoke of nutritious foods, exercise and massage for war heroes to promote healing and relaxation. The Greek physician Claudius Galen (130-200) became the physician to the Roman Emperor and was also physician in charge of the Roman legions and Roman gladiators also promoted exercise and massage.

Bone-setting is another ancient manual skill but the term can be misleading because it encompasses not only the setting of bones but also the reduction of dislocations as well as various types of soft tissue and skeletal manipulation. The art of bone-setting was often handed down from one generation to the next and was usually practiced by one 'gifted' person in most communities in Europe, Asia and America.

In England the establishment of the Medical Act in 1858 led to the creation of the General Medical Council, which acted as a regulating body for the medical profession. The Medical Act could not prevent bonesetters from practising but the general Medical Council threatened to deregister any doctor who referred patients to a bonesetter.

Bonesetters continued to practice and in one case Herbert Barker who was commonly referred to as 'Barker the bonesetter' was knighted in 1922 for his contribution to public health. (Inglis 1980). In the United States of America manual therapy was formalised with the establishment of Osteopathy, in 1892 by Andrew Taylor Still and Chiropractic, established by Daniel David Palmer in 1895, (Trattler 1987).

Massage and Physiotherapy

The development of modern Western massage techniques stems from Per Henink Ling (1776-1839). Ling was a fencing master to the University of Lund in Sweden who developed and systemised movements of massage and exercise (Lace 1941). Ling has often been referred to as the father of modern massage (Tritton 1993) and his methods were referred to as 'Remedial Gymnastics' or 'Swedish Massage'.

The first world-war created a demand for physical or manual therapist to assist in the rehabilitation of the huge numbers of injured war veterans and massage played an important role the armed forces hospitals. By 1920 a new group had formed called 'The Chartered Society of Massage and Medical Gymnastics', which was to change its name in 1964 to 'The Chartered Society of Physiotherapy'

In 1923 the State of Victoria Australia passed the 'Massage Act' and the first Masseurs were registered in 1923 (Kelsall & McComas 1966). This 'Act" and was to govern the training and professional standards of Masseurs and continued to regulate Masseurs until 1978 when the word massage was deleted and renamed the 'The Physiotherapy Act'. This modification of the original 'Massage Act' represented a gradual and evolutionary, change in the physiotherapy profession as a response to technological advances within the physiotherapy and medical fields. This resulted in greater diversity of treatment with the added responsibility for patient care with a corresponding decline in the use of massage as a form of therapy.

Myotherapy

Myotherapy can be defined as the treatment and management of musculoskeletal pain involving extensive physical evaluation and an integrated approach to affected muscles, joints and nerves. This approach is used in the treatment of acute or chronic conditions and in the area of preventive management.

Myotherapy treatment involves the use of soft tissue and skeletal mobilisation and also includes myofacial dry-needling, electrical stimulation, pain management techniques and prescriptive exercises.

The distinguishing feature of Myotherapy is its specific form of clinical reasoning in the assessment and treatment of musculoskeletal pain, using the standard methods of investigative assessment such as postural evaluation, orthopaedic, neurological, and functional testing. However a primary focus of the assessment involves a thorough palpatory exploration of spinal and peripheral joint play, the contractile state of specific muscles and an interpretation of these findings in their relationship to myofascial pain.

The application of Myotherapy requires a comprehensive theoretical knowledge in the biomedical and clinical sciences combined with a proficiency in clinical reasoning and the dexterity to utilize discipline-specific manual skills. These attributes must also be supported with communication and management skills, an appreciation of legal and ethical issues as well as an understanding of potential psychological issues.

Musculoskeletal pain may be divided into two primary categories: a) myofascial pain originating from muscle contracture, which can be general throughout a muscle or may present as myofascial trigger point/s (MTPs) or as taut bands of muscle fibre, or b) pain originating from other musculoskeletal conditions with a variety of presenting symptoms.

In many instances Myotherapy treatment is directed to the alleviation of symptoms and improving the quality of life for patients suffering from pathologies such as narrowing of disc spaces, arthritis, or other conditions involving chronic pain in which treatment is directed to improving quality of life rather than resolving underlying condition. Pain management is an important aspect in this type of treatment.

Myotherapy is based on the pioneering research of Drs Janet Travell and David Simons. The term 'Myotherapy' was promoted in the 1970's by Bonnie Prudden, an American health and fitness practitioner who developed a form of physical therapy, based on the work of Travell and Simons. Dr Desmond Tivy was involved with Prudden's work from its inception and it was he who coined the term. Myotherapy has continued to evolve to include the assessment techniques and treatment modalities which are presently being taught at a Bachelor Degree level. Graduates of the Bachelor of Health Science –

Myotherapy are generally represented by the Professional Myotherapists of Australia (PMA) and the Health Services Union (HSU).

Myotherapy, like other forms of physical treatment is not beneficial in all forms of muscular dysfunction, however when administered with a thorough understanding of its limitations and the benefits derived from its correct application, it can play an important role in physical therapy. It may also be used in conjunction with treatment provided by both medical and other allied-health practitioners.

Myofascial Trigger Points (MTPs)

These are areas of muscle contracture which have been have been defined by Travell and Simons (1984) as: "hyperirritable spots, usually found within a taut band of skeletal muscle or in the muscle's fascia that are painful on compression and can give rise to characteristic referred pain, tenderness and autonomic phenomena" (p 3). Historically they have been referred to as *Muskelharten* [Ger.] (muscle hardening) or *Myogelosen* [Ger.] (Myogelosis) [Hardenings] (Lang 1931) as myalgic spots (Gustein, 1938)) and were later described as trigger points (Steindler 1959). Trigger points have a clinical presentation of nodules within muscle tissue or within taut bands of muscle tissue that are closely associated with the MTP. The pain associated with trigger points is referred to as myofascial pain and may be ischemic in nature or may result from stretching a muscle sustaining a MTP or taut band. This type of pain may also result from general muscle contracture.

MTPs may be caused by trauma, ageing, overload or misuse of muscles arising from occupational, sporting and recreational activities or congenital factors such as short leg discrepancy. Systemic disorders can also cause myofascial pain and may include chronic fatigue, post viral myalgic conditions, fibromyalgia, vitamin deficiency.

Trigger points can be active or latent. An active trigger point causes spontaneous local and referred myofacial pain. A latent trigger point is clinically silent with respect to local and referred pain but will normally cause pain on compression. However latent trigger points can cause restriction of movement and weakness in the associated muscle.

A latent trigger point may persist for years after apparent recovery from injury but it predisposes attacks of pain since a number of factors may cause it to reactivate such as overuse or chilling of the muscle.

Trigger Point Formation

The pathophysiology involved in the formation or activation of a MTP may be due to an acute or chronic micro-trauma to the muscle (e.g. sustained muscle contraction due to tension and poor posture). This stress creates a disruption to the sacroplasmic reticulum resulting in the release of free calcium ions. In the presence of adenosine triphosphate (ATP) the free calcium stimulates the actin and myosin interaction at the sarcomere, and allows uncontrolled contractile activity. This increased metabolic activity activates an increase in serotonin, histamine, kinins and prostaglandins. These substances raise the sensitivity muscle nociceptors that converge with other visceral and somatic inputs creating the perception of local and referred pain.

This pain, by way of the Central Nervous System stimulates motor units and induces local muscle spasm, which decreases local blood flow and consequently reduces ATP and calcium pump action. The pain also stimulates more motor units producing a cycle of muscle spam. Any disruption to skeletal motor nerves of a radicular nature will create an excess of sensitivity in the muscle and create a predisposition to trigger point formation. Recent research suggests that MTPs are actually a neuromuscular disease with dysfunction existing between the motor nerve ending and the related muscle fibre. Biopsies of MTPs have consistently shown a dysfunctional motor end-plate and "contraction knots" to be present. Also found in MTPs are sensitive and active loci which are distributed throughout the muscle but are highly concentrated in the MTP region. These loci are probably nociceptors and are responsible for the contraction knots of shortened sarcomeres, which form the taut bands and palpable nodules of the MTP.

APPENDIX B

Basic Units of Competency used to develop the Advanced Diploma of Myotherapy

APPENDIX C

KEY FEATURES IN COMPETENCY-BASED LEARNING PROGRAMS

Key features in competency-based learning programs

1. Based on competency standards, developed by the relevant "industry". These competency standards have been incorporated into training packages.
2. Outcome not income focused in which the emphasis in curriculum development is based on the attainment of the specified competencies with the focus is on the outcome rather the process of attainment.
3. Involvement with industry is an important factor in competency-based learning programs that were introduced to create and maintain the skills required in a variety of occupations.
4. Recognition of prior learning where there is acceptance and recognition of a skill that has been acquired without formal training e.g. word-processing. This differs from credit-transfer where exceptions are given for previous study.
5. Modularised into units of competency that allows a curriculum or learning program to comprise of industry specific modules and general modules that are incorporated into the program. These units vary in size and complexity.
6. Self-paced learning and assessment allows the learner to be assessed when it is felt they have achieved an attainment of skill rather than at a specific time. Seen as suitable where individual rather than group training is being conducted.
7. Assessment based on skill rather than knowledge is a central feature of competency-based learning in which greater emphasis is placed on the ability to carry out manual rather than cognitive skills.
8. Assessment criterion-referenced not norm-referenced where assessment of performance is judged against a set criteria rather than an assessment of performance judged in comparison to others undergoing similar assessment.
9. Flexible delivery allows the course content to be delivered in a variety of ways to suite the requirements of the unit of competency, or the needs of the learner or the environment which may be required or available.
10. Competencies are widely recognized and are clearly described in a statement of attainment from the training provider allowing employers to be assured that an applicant has attained skills that meet industry requirements.

Figure 3.1 Adapted from Smith and Keating (2003) (pp. 125-129).

APPENDIX D

INTRODUCTORY INFORMATION TO PARTICIPANTS

Brian Tritton
School of Education
Victoria University

Date:

To:

Dear -----------,

Further to our recent telephone conversation I would like to thank you for agreeing to participate in the research program – Competency Based Curriculum in Higher Education.

The attached information to participants outlines the project and the focus of the interview questions.

I have included a list of questions with this letter and would appreciate if this could be completed as soon as possible (at your convenience). These open ended questions provide an orientation to the interview.

The interview will take place after the return of the responses to the open ended questions at a time and place which can be arranged at a later date.

It is expected that the interviews will take approximately one hour each.

I can be contacted as follows
E-mail   btritton@ssnt.com.au
Phone   (H) 94843082
              (W) 94153333

Yours Sincerely,

Brian Tritton

INFORMATION TO PARTICIPANTS:

PROJECT TITLE: **Competency-based Learning in Higher Education**

We would like to invite you to be a part of a study into Competency Based Curriculum in Higher Education. The purpose of the study is to research the usefulness and feasibility of incorporating competency based education and training into elements of a content-based Higher Education curriculum. The primary focus will be on those units, which combine both theoretical and practical aspects in their delivery but mention will be made of units which are primarily theoretical in delivery.

The research project will use the recently developed Myotherapy degree program as a case study to examine the premise: That competency-based education and training may be a useful mode of delivery in some units of a Higher Education sector curriculum to develop the skills and graduate attributes required by that sector.

The primary outcomes of the research will be an enhanced understanding of the viability of incorporating CBE/T into elements of a H/Ed sector program and whether this may have a positive contribution to the program in the development of the skills and graduate attributes required by that sector. It is anticipated that the implications of the theory or theories developed will have a useful application.

Mode of inquiry:
Using the recently accredited Myotherapy degree program as a case study this research has sought to answer two basic questions, 1) what are the views, experiences and perceptions of the participants regarding competency based learning programs? and 2) Are there any benefits in introducing competency-based learning into elements of a content-based degree in Myotherapy?

The methodology to be employed is to collect data from a small group of 10 participants, who were chosen for their experience in the development and delivery of competency-based programs in Myotherapy or in other health related programs in the VET or H/Ed sector.

The data will be gathered through a preliminary set of open ended questions which will be individually completed by the participant and followed by an, individual, in-depth, semi-structured interview.

The interview is expected to take approximately one hour

- Participants will be contacted by telephone and be given a verbal account of the nature of the study and they will then be asked if they agree to participate in the study.

- If verbal consent is obtained then they will be provided with a plain language statement describing the project and letters of consent.

- Participants' names will not be used in the reporting of this study

- Any data collected will be secured in a locked cabinet by the researcher.

- Participants may withdraw from the project at any time without explanation.

- Any queries about your participation in this project may be directed to the researcher ((Brian Tritton (Masters Student) Ph. 94843082 Dr Margaret Malloch (supervisor) ph. 99194828). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University, PO Box 14428 MCMC, Melbourne, 8001 (telephone no: 9919 4710). If counselling is required please contact Professor Maureen Ryan on 99194406.

Victoria University

Consent Form for Participants in Research

ATTACHMENT B

CERTIFICATION BY participant

I,_____

of_____

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certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study entitled: **Competency Based Curriculum in Higher Education** being conducted at Victoria University by: Brian Tritton (student) Dr Margaret Malloch (supervisor)

I certify that the objectives of the study, together with any risks and safeguards associated with the research, have been fully explained to me by:

Researcher Brian Tritton (research student) and Dr Margaret Malloch (Principal Researcher)

and that I freely consent to participation in the research which consists of:
• Responses to a set of open ended questions
• Participation in an interviews of approximately one hour.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:**..** **}**

Witness other than the researcher: **}** **Date: ....**

..}

Victoria University
Research Study for the Degree Master of Education

BACKGROUND INFORMATION FOR PARTICIPANTS

In 1989 the Ministers responsible for Education and Training in the States and Territories of Australia agreed to move toward a Competency-based Training system in what has become known as the Vocational Education and Training (VET) sector. At the same time he National Training Board (NTB) was established to implement these changes.

The NTB in consultation with industry representatives established and endorsed national competency standards in eight competency levels of the Australian Standards Framework (ASF). The first six of these levels cater for training up to technical and para-professional classifications and have been well established in the VET sector. The last two levels were to be undergraduate or professional levels and as such the institutions delivering those programs were not compelled to adopt a competency-based education and training model but were encouraged to give consideration to its implementation.

An early Australian definition of competence was the description provided by the National Training Board in 1992, stating that:

> "The concept of competency focuses on what is expected of an employee in the workplace rather than on the learning process; and embodies the ability to transfer and apply skills and knowledge to new situations and environments".

This tendency in Australia to focus on the occupational aspects and less on 'life skills' may have contributed to some of the misgivings which have accompanied competency-based learning programs, as suggested by Harris, Guthrie, Hobart and Lundberg (1995). It might also be considered narrow in the sense that they were employment related and had little reference to values and attitudes advocated in the graduate attributes of the higher education sector.

However attitudes relating to competence were broadened by the concepts expounded by the Mayer Committee Report into Employment-Related Key Competencies for Post Compulsory Education and Training (1992 p. ix) which further developed the concept of key competencies which had been identified by the Finn Report (1991) and stated that:

> "Employment-related competence should refer not only to a narrow skills based vocational content but also requires generic and key competencies, which are required for effective entry into a wide range of occupations and industries".

The development of a National Training Framework in 1997 produced the Australian Recognition Framework and the development of National Training Packages which were introduced into the VET sector and consisted of the competency standards,

assessment guidelines and qualifications developed by the relevant industry and are endorsed by the National Training Quality Council of the Australian National Training Authority (ANTA). These National Training Packages were to be used by Registered Training Organisations as guidelines to develop curriculum.

At this time professional bodies were encouraged to produce and apply "competency standards" rather than graduate qualifications when deciding a basis for entry level into a profession. Since that time many professional bodies have chosen to produce competency standards as a criterion for the expectations the profession has of new graduates.

These competency standards have obliged those tertiary institutions delivering the relevant undergraduate and post graduate programs to consider a competency based approach to their teaching and learning strategies. In many instances this has given more formality to the informal collaboration between the professions and universities that has existed for many years.

In developing these standards, the professional bodies determine the occupational roles and standards they would require for entry level into their profession. These are then expressed in a format developed by the NTB. This involves a comprehensive analysis of the graduate attributes and the underlying generic capabilities (skills, knowledge and attitudes) which underlie competent workplace performance. The above developmental process should be carried out as a consultative process which includes representatives from the profession, the relevant higher education provider/s and Registration Authority.

As a result of this compilation of competency standards, a number of educators have reassessed and modified their learning and assessment programs when designing curricula. These modified programs accommodate the competency standards prescribed by the profession. In a report by Bowden and Masters (1993) this was referred to as a "competency-based approach" to education and training in that competency standards are used to inform the design of curricula. They also state that this approach is likely to place significant emphasis on the ability to demonstrate a range of attributes in employment related outcomes. However this approach seems to be much more flexible than the rather more rigid process which has been adopted in the VET Sector.

It is hoped that this research will provide some insight into competency-based approach by exploring the perceptions and views of the participants in this study, all of whom, have had experience in curriculum development at VET and Higher Education sector levels.

It is also anticipated in the subsequent interview that the participants will express their attitudes to the feasibility of an integrated curriculum in which some elements or units may be content-based while others may be competency based.

Yours Sincerely

Brian Tritton

APPENDIX E

FOCUS QUESTIONS IN THE DESCRIPTIVE SURVEY

(1) Describe your concept of Competency-based Education and Training?

(2) What has been your experience or impressions of competency-based education and training?

(3) What impact, in your opinion, have the Australian National Training Packages had on the VET sector in general?

(4) What attitudes or reactions to Competency-based Education and Training do you perceive in the Higher Education sector?

(5) How would you view the introduction of competency-based approaches to education and training into the Higher Education sector?

(6) What implications do you feel a competency-based approach to curriculum in the H. Ed sector would have for autonomy in the design of curricula, teaching and assessment?

(7) What impact do you see the professional competency standards of some professional bodies having on the preparation of curriculum and teaching in the Higher Education sector?

(8) What impact do you think the introduction of a competency based approach to curricula would have on the preparation of graduates in the workforce?

(9) How might the adoption of a competency-based approach to those units of a Higher Education, Myotherapy degree program which have a substantial component of task-oriented objectives impact on the curriculum and outcomes for students and the profession.

PERSONAL BACKGROUND INFORMATION

Participants are asked to provide this personal background information with the purpose of saving time at the interview and allowing the interview to focus on issues pertaining to the research issues. Participants are asked to provide a brief description of each of the following: Length of involvement, role in the system and area of specialization.

(1) Experience in teaching or lecturing in the HE or VET sectors

_____

_____

_____

(2) Experience in curriculum development

_____

_____

_____

(3) Involvement with National Training Packages

_____

_____

_____

(4) Involvement with professional standards in HE or VET sectors

_____

_____

_____

(5) Involvement in CBE/T in the HE. sector

_____

_____

_____